Compendium of Changes

Key:	Resources 2006 Green Book Criteria (no compatabile CD in the Orange)	Resources 2014 Orange Book Criteria
I, II, III, IV		The individual trauma centers and their health care providers are essential system resources that must be active and engaged participants (CD 1–1).
I, II, III, IV		They must function in a way that pushes trauma center–based standardization, integration, and PIPS out to the region while engaging in inclusive trauma system planning and development (CD 1–2)
I, II, III, IV	1-1 All trauma centers must participate in the state and/or regional trauma system planning, development, or operation.	Meaningful involvement in state and regional trauma system planning, development, and operation is essential for all designated trauma centers and participating acute care facilities within a region (CD 1–3)
I, II, III, IV		This trauma center must have an integrated, concurrent performance improvement and patient safety (PIPS) program to ensure optimal care and continuous improvement in care (CD 2–1).
I, II, III	2-1 Surgical commitment is essential for a properly functioning trauma center.	Surgical commitment is essential for a properly functioning trauma center (CD 2–2).
I, II, III, IV	2-2 Trauma centers must be able to provide on their campus the necessary human and physical resources to properly administer acute care consistent with their level of verification.	Trauma centers must be able to provide the necessary human and physical resources (physical plant and equipment) to properly administer acute care consistent with their level of verification (CD 2–3).
I	2-3 A Level I trauma center must meet admission volume performance requirements (one of the following): **a)** Admit at least 1200 trauma patients yearly, **b)** 240 admissions with an Injury Severity Score (ISS) of more than 15, **c)** An average of 35 patients with an ISS of more than 15 for the trauma panel surgeons (general surgeons who take trauma all).	A Level I trauma center must admit at least 1,200 trauma patients yearly or have 240 admissions with an Injury Severity Score of more than 15. (CD 2–4).
I, II, III	2-4 The trauma director must have responsibility and authority for determining each general surgeon's ability to participate on the trauma panel based on an annual review.	[Level I] Through the trauma PIPS program and hospital policy, the trauma director must have responsibility and authority for determining each general surgeon's ability to participate on the trauma panel based on an annual review (CD 2–5).
		[Level II] Through the trauma PIPS program and hospital policy, the trauma director must have responsibility and authority for determining each general surgeon's ability to participate on the trauma panel based on an annual review (CD 2–5).
		[Level III] Through the trauma PIPS program and hospital policy, the trauma director must have responsibility and authority for determining each general surgeon's ability to participate on the trauma panel based on an annual review (CD 2–5).

Compendium of Changes

Key:	Resources 2006 Green Book Criteria (no compatabile CD in the Orange)	Resources 2014 Orange Book Criteria
I	2-5 General surgeon or appropriate substitute (postgraudate-year 4 or 5 resident) must be in house 24 hours a day for major resuscitations (must be present and participate in major resuscitations, therapeutic decisions, and operations).	[Level I] A resident in postgraduate year 4 or 5 or an attending emergency physician who is part of the trauma team may be approved to begin resuscitation while awaiting the arrival of the attending surgeon but cannot independently fulfill the responsibilities of, or substitute for, the attending surgeon (CD 2–6).
I		[Level I] Qualified attending surgeons must participate in major therapeutic decisions, be present in the emergency department for major resuscitations, be present at operative procedures, and be actively involved in the critical care of all seriously injured patients (CD 2–6).
II		[Level II] A resident in postgraduate year 4 or 5 or an attending emergency physician who is part of the trauma team may be approved to begin resuscitation while awaiting the arrival of the attending surgeon but cannot independently fulfill the responsibilities of, or substitute for, the attending surgeon (CD 2–6).
II		[Level II] Qualified attending surgeons must participate in major therapeutic decisions, be present in the emergency department for major resuscitations, be present at operative procedures, and be actively involved in the critical care of all seriously injured patients (CD 2–6).
I, II	2-6 The PIPS program must define the conditions requiring the attending surgeon's immediate hospital presence.	The presence of such a resident or attending emergency physician may allow the attending surgeon to take call from outside the hospital. In this case, local criteria and a PIPS program must be established to define conditions requiring the attending surgeon's immediate hospital presence (CD 2–7).
I, II, III	2-7 It is expected that the surgeon will be in the emergency department on patient arrival, with adequate notification from the field. The maximum acceptable response time is **15 minutes for Level I and II** trauma centers and **30 minutes for Level III** trauma centers, tracked form patient arrival. The program must demonstrate that the surgeon's presence is in compliance at least 80% of the time. Demonstration of the attending surgeon's prompt arrival for patients with appropriate activation criteria must be monitored by the hospital's trauma PIPS program.	For Level I trauma centers, it is expected that the surgeon will be in the emergency department on patient arrival, with adequate notification from the field. The maximum acceptable response time is 15 minutes for the highest-level activation tracked from patient arrival. The minimum criteria for full trauma team activation are provided in Table 2 in Chapter 5. The program must demonstrate that the surgeon's presence is in compliance at least 80 percent of the time (CD 2–8).
		For Level II trauma centers, it is expected that the surgeon will be in the emergency department on patient arrival, with adequate notification from the field. The maximum acceptable response time is 15 minutes for the highest level of activation tracked from patient arrival. The minimum criteria for full trauma team activation are provided in Table 2 in Chapter 5. The program must demonstrate that the surgeon's presence is in compliance at least 80 percent of the time (CD 2–8).

Compendium of Changes

Key:	Resources 2006 Green Book Criteria (no compatabile CD in the Orange)	Resources 2014 Orange Book Criteria
		For Level III trauma centers, it is expected that the surgeon will be in the emergency department on patient arrival, with adequate notification from the field. The maximum acceptable response time is 30 minutes for the highest level of activation, tracked from patient arrival. The PIPS program must demonstrate that the surgeon's presence is in compliance at least 80 percent of the time (CD 2–8).
IV		For Level IV trauma centers, it is expected that the physician or midlevel provider will be in the emergency department on patient arrival, with adequate notification from the field. The maximum acceptable response time is 30 minutes for the highest level of activation, tracked from patient arrival. The PIPS program must demonstrate that the physician's presence is in compliance at least 80 percent of the time (CD 2–8).
I		[Level I] The attending surgeon's immediate (within 15 minutes) arrival for patients with appropriate activation criteria must be monitored by the hospital's trauma PIPS program (CD 2–9).
II		[Level II] Compliance with this requirement and applicable criteria must be monitored by the hospital's PIPS program (CD 2–9).
I, II	2-8 The trauma surgeon on call must be dedicated to the trauma center while on duty.	[Level I] The trauma surgeon on call must be dedicated to a single trauma center while on duty (CD 2–10).
		[Level II] The trauma surgeon on call must be dedicated to a single trauma center while on duty (CD 2–10)
I, II	2-9 A published backup call schedule for trauma surgery must be available.	[Level I] In addition, a published backup call schedule for trauma surgery must be available (CD 2–11).
		[Level II] In addition, a published backup call schedule for trauma surgery must be available (CD 2–11).
III	2-10 A Level III trauma center must have continuous general surgical coverage.	A Level III trauma center must have continuous general surgical coverage (CD 2–12).
III	2-11 Trauma panel surgeons must respond promptly to activations, remain knowledgeable in trauma care principles, whether treating patients locally or transferring them to a center with more resources, and participate in performance review activities.	
III, IV	2-12 Well-defined transfer plans are essential (approved by the TMD and monitored by the PIPS program) that define appropriate patients for transfer and retention.	[Level III] Well-defined transfer plans are essential (CD 2–13).
		[Level IV] Well-defined transfer plans are essential (CD 2–13).

Compendium of Changes

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IV		Collaborative treatment and transfer guidelines reflecting the Level IV facilities' capabilities must be developed and regularly reviewed, with input from higher-level trauma centers in the region (CD 2–13).
IV	2-13 **A Level ~~III and~~** IV facilities must have 24-hour emergency coverage by a physician.	A Level IV facility must have 24-hour emergency coverage by a physician or midlevel provider (CD 2–14).
IV		The emergency department at Level IV centers must be continuously available for resuscitation with coverage by a registered nurse and physician or midlevel provider, and it must have a physician director (CD 2–15).
IV		[Level IV] These providers must maintain current Advanced Trauma Life Support® certification as part of their competencies in trauma (CD 2–16).
I, II, III, IV		For Level I, II, III and IV trauma centers a trauma medical director and trauma program manager knowledgeable and involved in trauma care must work together with guidance from the trauma peer review committee to identify events, develop corrective action plans, and ensure methods of monitoring, reevaluation, and benchmarking. (CD 2-17).
I, II, III, IV		Level I, II, III and IV trauma centers the multidisciplinary trauma peer review committee must meet regularly, with required attendance of medical staff active in trauma resuscitation, to review systemic and care provider issues, as well as propose improvements to the care of the injured (CD 2–18).
I, II, III, IV		Level I, II, III and IV trauma centers a PIPS program must have audit filters to review and improve pediatric and adult patient care (CD 2–19).
IV		Because of the greater need for collaboration with receiving trauma centers, the Level IV trauma center must also actively participate in regional and statewide trauma system meetings and committees that provide oversight (CD 2–20).
IV		The Level IV trauma center must also be the local trauma authority and assume the responsibility for providing training for prehospital and hospital-based providers (CD 2–21).
I, II, III, IV		For Level I, II, III and IV trauma centers the facility must participate in regional disaster management plans and exercises (CD 2–22).
I, II, III	2-14 and 2-15 Any adult trauma center that annually admits 100 or more injured children younger than 15 years must fulfill the following additional criteria demonstrating their capability to care for injured children: Trauma surgeons must be credentialed for pediatric trauma care by the hospital's credentialing body, there must be a pediatric emergency department area, pediatric intensive care area, appropriate resuscitation equipment, and a pediatric-specific trauma PIPS program.	Any adult trauma center that annually admits 100 or more injured children younger than 15 years must fulfill the following additional criteria demonstrating their capability to care for injured children: Trauma surgeons must be credentialed for pediatric trauma care by the hospital's credentialing body (CD 2–23).

Compendium of Changes

Key:	Resources 2006 Green Book Criteria (no compatabile CD in the Orange)	Resources 2014 Orange Book Criteria
I, II, III	2-15, See CD 2-14	There must be a pediatric emergency department area, a pediatric intensive care area, appropriate resuscitation equipment, and a pediatric-specific trauma PIPS program (CD 2–24).
I, II, III	2-16 For adult trauma centers admitting fewer than 100 injured children younger than 15 years, these resources are desirable. These hospitals must, however, review the care of their injured children through their PIPS program.	For adult trauma centers annually admitting fewer than 100 injured children younger than 15 years, these resources are desirable. These hospitals, however, must review the care of their injured children through their PIPS program (CD 2–25).
I, II, III	3-1 The trauma director is involved in the development of the trauma center's bypass protocol.	The trauma director must be involved in the development of the trauma center's bypass (diversion) protocol (CD 3–4).
I, II, III	3-2 The trauma surgeon is involved in the decisions regarding bypass. The surgeons should be actively involved in prehospital personnel training, the PIPS process, and development of trauma components of EMS.	The trauma surgeon must be involved in the decision regarding bypass (diversion) each time the center goes on bypass (CD 3–5).
I, II, III, IV		The protocols that guide prehospital trauma care must be established by the trauma health care team, including surgeons, emergency physicians, medical directors for EMS agencies, and basic and advanced prehospital personnel (CD 3–2).
I, II, III		Rigorous multidisciplinary performance improvement is essential to evaluate overtriage and undertriage rates to attain the optimal goal of less than 5 percent undertriage (CD 3–3).
I, II, III, IV	3-3 The trauma program must participate in the development and improvement of pre-hospital care protocols and patient safety programs.	The trauma program must participate in the training of prehospital personnel, the development and improvement of prehospital care protocols, and performance improvement and patient safety programs (CD 3–1).
I, II, III	3-4 The facility can not exceed the maximum divert time of 5%	The trauma center must not be on bypass (diversion) more than 5 percent of the time (CD 3–6).
I, II, III, IV		When a trauma center is required to go on bypass or to divert, the center must have a system to notify dispatch and EMS agencies (CD 3–7). The center must do the following: • Prearrange alternative destinations with transfer agreements in place • Notify other centers of divert or advisory status • Maintain a divert log • Subject all diverts and advisories to performance improvement procedures
I, II, III, IV	4-1 A mechanism for direct physician to physician contact is present for arranging patient transfers.	Direct physician-to-physician contact is essential (CD 4–1).

Compendium of Changes

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I, II, III	4-2 The decision to transfer an injured patient to a specialty care facility in an acute situation is based solely on the needs of the patient; for example, payment method is not considered.	The decision to transfer an injured patient to a specialty care facility in an acute situation must be based solely on the needs of the patient and not on the requirements of the patient's specific provider network (for example, a health maintenance organization or a preferred provider organization) or the patient's ability to pay (CD 4–2).
I, II, III, IV		A very important aspect of interhospital transfer is an effective PIPS program that includes evaluating transport activities (CD 4–3).
I, II, III, IV		Perform a PIPS review of all transfers (CD 4–3).
I, II, III, IV	5-1 The hospital has the commitment of the institutional governing body and the medical staff to become a trauma center.	A decision by a hospital to become a trauma center requires the commitment of the institutional governing body and the medical staff (CD 5–1).
I, II, III, IV		Documentation of administrative commitment is required from the governing body and the medical staff (CD 5–1)
I, II, III	5-2 [Administrative] There is a current resolution (reaffirmed every three years) supporting the trauma center from the hospital board.	This support must be reaffirmed continually (every 3 years) and must be current at the time of verification (CD 5–2).
I, II, III	5-3 [Medical Staff] There is a current resolution (reaffirmed every three years) supporting the trauma center from the medical staff.	The support must be reaffirmed continually (every 3 years) and must be current at the time of verification (CD 5–3).
I, II, III		The trauma program must involve multiple disciplines and transcend normal departmental hierarchies (CD 5–4).
I, II, III	5-4 The multidisciplinary trauma program continuously evaluates its processes and outcomes to ensure optimal and timely care.	
I, II, III	5-5 The trauma medical director is either a board-certified surgeon or an ACS Fellow.	The TMD must be a current board-certified general surgeon (or a general surgeon eligible for certification by the American Board of Surgery according to current requirements) or a general surgeon who is an American College of Surgeons Fellow with a special interest in trauma care and must participate in trauma call (CD 5-5).
I, II, III	5-6 The trauma medical director participates in trauma call.	merged with CD 5-5
I, II, III	5-7 The trauma medical director is current in Advanced Trauma Life Support.	The TMD must be current in Advanced Trauma Life Support® (ATLS®) (CD 5–6).
		The TMD must maintain an appropriate level of trauma-related extramural continuing medical education (16 hours annually, or 48 hours in 3 years) (CD 5–7)
I, II	5-8 The trauma director is a member and an active participant in national or regional trauma organizations.	Membership and active participation in regional or national trauma organizations are essential for the trauma director in Level I and II trauma centers and are desirable for TMDs in Level III and IV facilities (CD 5–8).
I, II, III	5-9 The trauma director has the authority to correct deficiencies in trauma care or exclude from trauma call the trauma team members who do not meet specified criteria.	The TMD, in collaboration with the TPM, must have the authority to correct deficiencies in trauma care and exclude from trauma call the trauma team members who do not meet specified criteria(CD 5-11).

Compendium of Changes

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I, II, III		The TMD must have the authority to manage all aspects of trauma care (CD 5–9).
I, II, III		The TMD must chair and attend a minimum of 50% of the multidisciplinary trauma peer review committee meetings. (CD 5-10)
I, II, III		In addition, the TMD must perform an annual assessment of the trauma panel providers in the form of Ongoing Professional Practice Evaluation (OPPE) and Focused Professional Practice Evaluation (FPPE) when indicated by findings of the PIPS process (CD 5-11).
I, II, III		The TMD must have the responsibility and authority to ensure compliance with the above requirements and cannot direct more than one trauma center (CD 5-12).
I, II, III, IV	5-10 The criteria for a graded activation are clearly defined by the trauma center and continuously evaluated by the PIPS program. **SEE FAQ**	The criteria for a graded activation must be clearly defined by the trauma center, with the highest level of activation including the six required criteria listed in Table 2 (CD 5–13).
I, II, III, IV		Other potential criteria for trauma team activation that have been determined by the trauma program to be included in the various levels of trauma activation must be evaluated on an ongoing basis in the PIPS process (CD 5-16) to determine their positive predictive value in identifying patients who require the resources of the full trauma team.
I, II		In Level I and II trauma centers, the highest level of activation requires the response of the full trauma team within 15 minutes of arrival of the patient, and the criteria should include physiologic criteria and some or several of the anatomic criteria (CD 5-14)
III, IV		In Level III and IV trauma centers the team must be fully assembled within 30 minutes (CD 5-15).
I, II, III		The emergency physician may initially evaluate the limited-tier trauma patient, but the center must have a clearly defined response expectation for the trauma surgical evaluation of those patients requiring admission (CD 5-16).
I, II, III	5-11 Programs that admit more than 10% of injured patients to nonsurgical services have demonstrated the appropriateness of that practice through the PIPS process. **SEE FAQ**	Programs that admit more than 10% of injured patients to non-surgical services must review all non-surgical admissions through the trauma PIPS process (CD 5–18).
I, II	5-12 Seriously injured patients are admitted or evaluated by an identifiable surgical service staffed by credentialed providers.	In a Level I or II trauma center, seriously injured patients must be admitted to, or evaluated by, an identifiable surgical service staffed by credentialed trauma providers (CD 5-17).
I, II	5-13 There is sufficient infrastructure and support to the trauma service to ensure adequate provision of care.	[Level I and II] Sufficient infrastructure and support to ensure adequate provision of care must be provided for this service (CD 5–19).

Compendium of Changes

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I, II	5-14 In teaching facilities, the requirements of the Residency Review Committee are met.	[Level I and II] In teaching facilities, the requirements of the residency review committees also must be met (CD 5–20).
III	5-15 The structure of the trauma program allows the trauma director to have oversight authority for the care of injured patients who may be admitted to individual surgeons.	In Level III centers, injured patients may be admitted to individual surgeons, but the structure of the program must allow the trauma director to have oversight authority for the care of these patients. (CD 5-17)
III	5-16 There is a method to identify injured patients, monitor the provision of health care services, make periodic rounds, and hold formal and informal discussions with individual practitioners.	[Level III] There must be a method to identify the injured patients, monitor the provision of health care services, make periodic rounds, and hold formal and informal discussions with individual practitioners (CD 5–21).
I, II, III		[Level I, II & III, TPM] In addition to administrative ability, the TPM must show evidence of educational preparation and clinical experience in the care of injured patients (CD 5-22).
I, II		In Level I and II trauma centers, the TPM must be full-time and dedicated to the trauma program (CD 5–23).
I, II	5-17 The trauma program manager shows evidence of educational preparation (a minimum of 16 hours of trauma-related continuing education per year) and clinical experience in the care of injured patients.	[Level I and II] The TPM must show evidence of educational preparation, with a minimum of 16 hours (internal or external) of trauma-related continuing education per year and clinical experience in the care of injured patients (CD 5-24).
I, II, III	5-18 There is a multidisciplinary peer review committee chaired by the trauma medical director or designee, with representatives from appropriate subspecialty services.	The trauma center's PIPS program must have a multidisciplinary trauma peer review committee chaired by the TMD (CD 5-25).
I, II, III	5-19 Adequate (>50%) attendance by general surgery (core group) at the multidisciplinary peer review committee is documented.	
I, II, III	5-20 The core group is adequately defined by the trauma medical director.	
I, II, III	5-21 The core group takes at least 60% of the total trauma call hours each month.	
I, II, III	5-22 The trauma medical director ensures and documents dissemination of information and findings from the peer review meetings to the non-core surgeons on the trauma call panel.	
I, II, III	5-23 There must be a Trauma Program Operational Process Performance Improvement Committee.	
I, II, III	6-1 The trauma medical director has responsibility and authority to ensure compliance with verification requirements.	
I, II, III		General surgeons caring for trauma patients must meet certain requirements, as described herein (CD–6-1). These requirements may be considered to be in four categories: current board certification, clinical involvement, performance improvement and patient safety, and education.

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I, II, III	6-2 The general surgeon must be board-certified or meet the Alternate Pathway or is an ACS fellow.	Board certification or eligible for certification by the American Board of Surgery according to current requirements or the alternate pathway is essential for general surgeons who take trauma call in Level I, II, and III trauma centers (CD 6–2).
I, II, III		Alternate Criteria (CD 6-3) for non–Board-Certified Surgeons in a Level I, II, or III Trauma Centers.
I, II, III	6-3 The trauma surgeon must have privileges in general surgery.	Trauma surgeons must have privileges in general surgery (CD 6–4).
I, II	6-4 The trauma surgeon on call must be dedicated to the trauma service while on duty.	In Level I and II trauma centers, the trauma surgeon on call must be dedicated to a single trauma center while on duty (CD 6–5).
I, II	6-5 A published back-up call schedule for trauma surgery must be available.	[Level I and II] In addition, a published backup call schedule for trauma surgery must be available (CD 6–6).
I, II, III, IV	6-6 An attendance threshold of 80% must be met for trauma surgeon presence in the emergency department.	For Level I and II trauma centers, the maximum acceptable response time is 15 minutes; for Level III amd IV trauma centers, the maximum acceptable response time is 30 minutes. Response time will be tracked from patient arrival rather than from notification or activation. An 80 percent attendance threshold must be met for the highest-level activations (CD 2–8).
I, II, III	6-7 The criteria for the highest level of activations are clearly defined and evaluated by the PIPS program. **SEE FAQ**	
I, II, III	6-8 A mechanism for documenting trauma surgeon presence in the operating room for all trauma operations is in place.	For Level I, II, and III trauma centers, the attending surgeon is expected to be present in the operating room for all operations. A mechanism for documenting this presence is essential (CD 6–7).
I, II, III	6-9 There is a multidisciplinary peer review committee with participation from general surgery, orthopaedic surgery, neurosurgery, emergency medicine, and anesthesia.	In Level I, II, and III trauma centers, there must be a multidisciplinary trauma peer review committee chaired by the trauma medical director (CD 5-25) and representatives from general surgery (CD 6–8), and liaisons from orthopaedic surgery (CD 9-16), emergency medicine (CD 7-11), ICU (CD 11-62), and anesthesia (CD 11-13) - and for Level I and II trauma centers, neurosurgery (CD 8-13) and radiology (CD 11-39).
I, II, III	6-10 Adequate (>50%) attendance by general surgery (core group) at the multi-disciplinary peer review committee is documented.	Each member of the group of general surgeons must attend at least 50 percent of the multidisciplinary trauma peer review committee meetings (CD 6–8).
I, II, III	6-11 All general surgeons on the trauma team have successfully completed the ATLS® course at least once.	All general surgeons on the trauma team must have successfully completed the Advanced Trauma Life Support® (ATLS®) course at least once (CD 6–9).
I, II	6-12 The trauma medical director has documented 16 hours annually or 48 hours in 3 years of verifiable, external trauma-related CME.	The trauma medical director must accrue an average of 16 hours annually or 48 hours in 3 years of verifiable external trauma-related CME (CD 5–7).

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I, II	6-13 Other trauma surgeons who take trauma call have documented 16 hours annually or 48 hours in the past 3 years of trauma-related CME or an internal educational process conducted by the trauma program based on the principles of practice-based learning and the PIPS program.	In Level I and II trauma centers, this requirement must be met by the acquisition of 16 hours of CME per year on average or by demonstrating participation in an internal educational process conducted by the trauma program based on the principles of practice-based learning and the performance improvement and patient safety program (CD 6–10).
I, II	6-14 The trauma medical director is a member of and participates in regional or national trauma organizations.	
I, II, III	7-1 The emergency department has a designated emergency physician director supported by an appropriate number of additional physicians to ensure immediate care for injured patients.	The emergency departments of Level I, II, and III trauma centers must have a designated emergency physician director supported by an appropriate number of additional physicians to ensure immediate care for injured patients (CD 7–1).
I, II	7-2 Emergency department physicians must be present in the emergency department at all times.	An emergency physician must be present in the department at all times in a Level I and Level II trauma centers (CD 7–2).
III	7-3 Emergency physicians cover in-house emergencies with a PIPS process demonstrating the efficacy of this practice.	Occasionally, in a Level III trauma center, it is necessary for the physician to leave the emergency department for short periods to address in-house emergencies. Such cases and their frequency must be reviewed by the performance improvement and patient safety (PIPS) program to ensure that this practice does not adversely affect the care of patients in the emergency department (CD 7–3).
I, II, III	7-4 In institutions in which there are emergency medicine residency training programs, supervision is provided by an in-house attending emergency physician 24 hours per day.	In institutions in which there are emergency medicine residency training programs, supervision must be provided by an in-house attending emergency physician 24 hours per day (CD 7–4).
I, II, III	7-5 The roles of emergency physicians and trauma surgeons are defined, agreed on, and approved by the director of trauma services.	These roles and responsibilities must be defined, agreed on, and approved by the director of the trauma service (CD 7–5).
I, II, III	7-6 An emergency physician is board-certified or meets the Alternate Pathway.	Board certification or eligibility for certification by the appropriate body according to current requirements or the alternate pathway is essential for physicians staffing the emergency department and caring for trauma patients in Level I, II, and III trauma centers (CD 7–6).
I, II, III		Alternate Criteria (CD 6-3) for Non–Board-Certified Emergency Medicine Physicians in Level I, II, and III Trauma Centers
I, II, III	7-7 Emergency physicians on the call panel are regularly involved in the care of injured patients.	Emergency physicians on the call panel must be regularly involved in the care of injured patients (CD 7–7).
I, II, III	7-8 A representative from the emergency department participates in the pre-hospital PIPS program.	A representative from the emergency department must participate in the prehospital PIPS program (CD 7–8).
I, II, III	7-9 A designated emergency physician is available to the trauma director for PIPS issues that occur in the emergency department.	A designated emergency physician liaison must be available to the trauma director for PIPS issues that occur in the emergency department (CD 7–9).

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I, II, III	7-10 There is emergency physician participation with the overall trauma PIPS program and the Trauma Program Operational Process Performance Committee (dealing with systems issues).	Emergency physicians must participate actively in the overall trauma PIPS program and the multidisciplinary trauma peer review committee (CD 7–10).
I, II, III	7-11 The emergency medicine representative or designee to the multi-disciplinary peer review committee attends a minimum of 50% of these meetings.	The emergency medicine liason the multidisciplinary trauma peer review committee must attend a minimum of 50 percent of the committee meetings (CD 7–11).
I, II	7-12 The emergency physician liaison representative has the documented 16 hours annually or 48 hours in 3 years of verifiable, external trauma-related CME	In Level I and II trauma centers, the liaison representative from emergency medicine must accrue an average of 16 hours annually or 48 hours in 3 years of verifiable external trauma-related CME (CD 7–12).
I, II	7-13 Other emergency physicians who take trauma call have the documented 16 hours annually or 48 hours in 3 years of trauma-related CME, or participate in an internal educational process conducted by the trauma program based on the principles of practice-based learning and the PIPS program.	Other emergency physicians who participate on the trauma team also must be knowledgeable and current in the care of injured patients. This requirement may be met by documenting the acquisition of 16 hours of trauma-related CME per year on average or by demonstrating participation in an internal educational process conducted by the trauma program based on the principles of practice-based learning and the PIPS program (CD 7–13).
I, II, III	7-14 There are emergency physicians who have successfully completed the ATLS® course.	In Level I, II, and III trauma centers, all board-certified emergency physicians or those eligible for certification by an appropriate body according to their current requirements must have successfully completed the ATLS course at least once (CD 7–14).
I, II, III	7-15 The physicians who are not board certified in emergency medicine who work in the emergency department are current in ATLS®.	Physicians who are certified by boards other than emergency medicine who treat trauma patients in the emergency department are required to have current ATLS status (CD 7–15).
I, II	8-1 A neurosurgical liaison is designated.	If this surgeon is not the director of the neurosurgery service, a neurologic surgeon liaison must be designated (CD 8–1).
I, II	8-2 Neurotrauma care is promptly and continuously available for severe traumatic brain injury and spinal cord injury and for less severe head and spine injuries when necessary. **SEE FAQ**	Neurotrauma care must be continuously available for all TBI and spinal cord injury patients and must be present and respond within 30 minutes based on institutional-specific criteria (CD 8–2).
I, II	8-3 The hospital provides an on-call neurosurgical backup schedule with formally arranged contingency plans in case the capability of the neurosurgeon, hospital, or system to care for neurotrauma patients is overwhelmed.	The trauma center must provide a reliable, published neurotrauma call schedule with formally arranged contingency plans in case the capability of the neurosurgeon, hospital, or system to care for neurotrauma patients is overwhelmed (CD 8–3).

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Key:	Resources 2006 Green Book Criteria (no compatabile CD in the Orange)	Resources 2014 Orange Book Criteria
I, II	8-4 There is a PIPS review of all neurotrauma patients who are diverted or transferred.	The center must have a predefined and thoroughly developed neurotrauma diversion plan that is implemented when the neurosurgeon on call becomes encumbered (CD 8–4). A predefined, thoroughly developed neurotrauma diversion plan must include the following: • Emergency medical services notification of neurosurgery advisory status/diversion. • A thorough review of each instance by the performance improvement and patient safety (PIPS) program. • Monitoring of the efficacy of the process by the PIPS program.
I, II, III		A formal, published contingency plan must be in place for times in which a neurosurgeon is encumbered upon the arrival of a neurotrauma case (CD 8–5). The contingency plan must include the following: • A credentialing process to allow the trauma surgeon to provide initial evaluation and stabilization of the neurotrauma patient. • Transfer agreements with a similar or higher-level verified trauma center. • Direct contact with the accepting facility to arrange for expeditious transfer or ongoing monitoring support. • Monitoring of the efficacy of the process by the PIPS program.
I, II	8-5 An attending neurosurgeon is promptly available to the hospital's trauma service when neurosurgical consultation is requested.	
I, II, III		If one neurosurgeon covers two centers within the same limited geographic area, there must be a published backup schedule (CD 8-6.)
I, II, III		In addition, the performance improvement process must demonstrate that appropriate and timely care is provided (CD 8–6).
III	8-6 There is a trauma-director approved plan that determines which types and severity of neurologic injury patients should remain at the facility when no neurosurgical coverage is present.	A Level III trauma center must have a plan approved by the trauma medical director that determines which types of neurosurgical injurIes may remain and which should be transferred (CD 8–7).
III	8-7 There is a performance improvement program that convincingly demonstrates appropriate care in the facility that treats neurotrauma patients.	In all cases, whether patients are admitted or transferred, the care must be timely, appropriate, and monitored by the PIPS program (CD 8–9).
III	8-8 There are transfer agreements with appropriate Level I and Level II centers.	Transfer agreements must exist with appropriate Level I and Level II trauma centers (CD 8–8).
I, II, III	8-9 The neurosurgeons who care for trauma patients are board-certified or meet the Alternate Pathway.	Board certification or eligibility for certification by the current standard requirements or the alternate pathway is essential for neurosurgeons who take trauma call in Level I, II, or III trauma centers (CD 8–10).

Compendium of Changes

Key:	Resources 2006 Green Book Criteria (no compatabile CD in the Orange)	Resources 2014 Orange Book Criteria
I, II, III		Alternate Criteria (CD 6-3) for Non–Board-Certified Neurosurgeons in Level I, II, and III Trauma Centers
I, II	8-10 Qualified neurosurgeons are regularly involved in the care of head - and spinal cord- injured patients and are credentialed by the hospital with general neurosurgical privileges.	Qualified neurosurgeons should be regularly involved in the care of patients with head and spinal cord injuries and must be credentialed by the hospital with general neurosurgical privileges (CD 8–11).
I, II	8-11 The neurosurgery service participates actively with the overall trauma PIPS program and the Trauma Program Operational Process Performance Committee.	The neurosurgery service must participate actively in the overall trauma PIPS program (CD 8–12).
I, II	8-12 The neurosurgeon representative attends a minimum of 50% of the multidisciplinary peer review committee meetings.	The neurosurgery liaison on the multidisciplinary trauma peer review committee must attend a minimum of 50 percent of the committee's meetings (CD 8–13).
III		Level III centers with any emergeny neurosurgical cases must also have the participation of neurosurgery on the multidisciplinary traum apeer review committee (8-13)
I, II	8-13 The neurosurgeon liaison representative has documented 16 hours annually or 48 hours in 3 years of verifiable, external trauma-related CME.	The liaison representative from neurosurgery must accrue an average of 16 hours annually or 48 hours in 3 years of verifiable external trauma-related CME (CD 8–14)
I, II	8-14 Other neurosurgeons who take trauma call have the documented 16 hours annually or 48 hours in 3 years of verifiable, external trauma-related CME, and participate in an internal educational process conducted by the trauma program based on the principles of practice-based learning and the PIPS program.	This requirement may be documented by the acquisition of 16 hours of trauma CME per year on average or through an internal educational process (IEP)conducted by the trauma program and the neurosurgical liaison based on the principles of practice-based learning and the PIPS program (CD 8–15).
I, II	9-1 Physical and occupational therapists and rehabilitation specialists are present.	Because of their skills and training in the management of the acute and rehabilitation phases of musculoskeletal trauma, physical and occupational therapists and rehabilitation specialists are essential at Level I and II trauma centers (CD 9–1).
I, II, III	9-2 Operating rooms are promptly available to allow for emergency operations on musculoskeletal injuries, such as open fracture debridement and stabilization and compartment decompression.	Operating rooms must be promptly available to allow for emergency operations on musculoskeletal injuries, such as open fracture debridement and stabilization, external fixator placement, and compartment decompression (CD 9–2).
I, II	9-3 A mechanism to ensure operating room availability without undue delay for patients with semiurgent orthopaedic injuries is present.	In Level I and II trauma centers, a system must be organized so that musculoskeletal trauma cases can be scheduled without undue delay and not at inappropriate hours that might conflict with more urgent surgery or other elective procedures (CD 9–3).
I, II, III	9-4 There is an orthopaedic surgeon who is identified as the liaison to the trauma program.	Level I, II, and III trauma centers must have an orthopaedic surgeon who is identified as the liaison to the trauma program (CD 9–4).

Compendium of Changes

Key:	Resources 2006 Green Book Criteria (no compatabile CD in the Orange)	Resources 2014 Orange Book Criteria
I	9-5 Plastic surgery, hand surgery, and spinal injury care capabilities are present at Level I trauma centers.	
I		In a Level I trauma center the orthopaedic care must be overseen by an individual who has completed a fellowship in orthopaedic traumatology approved by the Orthopaedic Trauma Association (OTA) (CD 9-5).
PTC I		In Pediatric Level I trauma centers this requirement may be met by having formal transfer agreements that specify which cases will be transferred for high level orthopaedic oversight and assuring that all such transfers (or potential transfers) are reviewed as part of the perofrmance improvement process (CD 9-5)
I, II	9-6 Orthopaedic team members have dedicated call at their institution and have a backup call system.	[Level I and II] Orthopaedic team members must have dedicated call at their institution or have an effective backup call system (CD 9–6).
I, II	9-7 An orthopaedic team member is promptly available in the trauma resuscitation area when consulted by the surgical trauma team leader for multiply injured patients.	[Level I and II] They must be available in the trauma resuscitation area within 30 minutes after consultation has been requested by the surgical trauma team leader for multiply injured patients (CD 9-7) based on institution-specific criteria.
I, II		[Level I and II] The performance improvement process must ensure that care is timely and appropriate (CD 9-8).
I, II	9-6 If the on-call orthopaedic surgeon is unable to respond promptly, a backup consultant on-call surgeon must be available.	[Level I and II] If the on-call orthopaedic surgeon is unable to respond promptly, a backup consultant on-call surgeon must be available (CD 9-9).
I, II	9-8 The design of the backup call system, the responsibility of the orthopaedic trauma liaison, has been approved by the trauma program director.	[Level I and II] The design of this system is the responsibility of the orthopaedic trauma liaison but must be approved by the trauma program director (CD 9-10).
I, II	9-9 Level I and II centers provide sufficient resources, including instruments, equipment, and personnel, for modern musculoskeletal trauma care, with readily available operating rooms for musculoskeletal trauma procedures.	[Level I and II] The trauma center must provide all the necessary resources for modern musculoskeletal trauma care, including instruments, equipment, and personnel, along with readily available operating rooms for musculoskeletal trauma procedures (CD 2–3).
~~II,~~ III	9-10 The PIPS process reviews the appropriateness of the decision to transfer or retain major orthopaedic trauma.	[Level III] The PIPS process must review the appropriateness of the decision to transfer or retain major orthopaedic trauma cases (CD 9-13).
III	9-11 The Level III facility has an orthopaedic surgeon on call and promptly available 24 hours a day.	Level III facilities vary significantly in the staff and resources that they can commit to musculoskeletal trauma care, but they must have an orthopaedic surgeon on call and promptly available 24 hours a day (CD 9-11).
III		[Level III] If the orthopaedic surgeon is not dedicated to a single facility while on call, then a published backup schedule is required (CD 9-12).

Compendium of Changes

Key:	Resources 2006 Green Book Criteria (no compatabile CD in the Orange)	Resources 2014 Orange Book Criteria
I, II		There must be protocols in Level I and II centers for the following orthopaedic emergencies: 1) the type and severity of pelvic and acetabular fractures that will be treated at the institutions as well as those that will be transferred out for care; 2) the timing and sequence for the treatment of long bone fractures in multiply injured patients; and 3) the wash out time for open fractures. These protocols must be included as part of the PIPS process (CD 9-14).
I, II, III	9-12 The orthopaedic service participates actively with the overall trauma PIPS program and the Trauma Program Operational Process Performance Committee.	The orthopaedic service must participate actively with the overall trauma PIPS program and the multidisciplinary trauma peer review committee (CD 9–15).
I, II, III	9-13 The orthopaedic trauma liaison or representative attends a minimum of 50% of the multidisciplinary peer review meetings.	The orthopaedic liaison to the trauma PIPS program must attend a minimum of 50 percent of the multidisciplinary trauma peer review committee meetings (CD 9–16).
I, II, III	9-14 Orthopaedic surgeons who care for injured patients are board certified or meet the Alternate Pathway.	Board certification or eligibility for certification by the appropriate body according to current standard requirements, or the alternate pathway is essential for orthopaedic surgeons who take trauma call in Level I, II, and III trauma centers (CD 9–17).
I, II, III		Alternate Criteria (CD 6-3) for Non–Board-Certified Orthopaedic Surgeons in a Level I, II, or III Trauma Center
I, II, III	9-15 The orthopaedic surgeon has privileges in general orthopaedic surgery.	
I, II	9-16 The orthopaedic surgical liaison to the trauma program at Level I and Level II centers has documented at least 16 hours annually or 48 hours in years of verifiable, external trauma-related CME.	The orthopaedic surgical liaison to the trauma program at Level I and II centers must accrue an average of 16 hours annually or 48 hours in 3 years of verifiable external trauma-related continuing medical education (CME) (CD 9–18).
I, II	9-17 The orthopaedic trauma team member has documentation of the acquisition of 16 hours of CME per year on average and has participated in an internal educational process conducted by the trauma program and the orthopaedic liaison based on the principles of practice-based learning and the PIPS program.	This requirement may be documented by the acquisition of 16 hours of trauma CME per year on average or through an internal educational process conducted by the trauma program and the orthopaedic liaison based on the principles of practice-based learning and the PIPS program (CD 9–19).
PTC I, II	10-1 Hospitals that pursue verification as pediatric trauma centers must meet the same resource requirements as adult trauma centers, in addition to pediatric resource requirements (Table 1)	Hospitals that pursue verification as pediatric trauma centers must meet the same resource requirements as adult trauma centers, in addition to pediatric resource requirements (CD 2–3) (Table 1)
PTC I	10-2 A Level I pediatric trauma center must annually admit 200 or more injured children younger than 15 years.	A Level I pediatric trauma center must annually admit 200 or more injured children younger than 15 years (CD 10–1)
PTC II	10-3 A Level II pediatric trauma center must annually admit 100 or more injured children younger than 15 years.	A Level II pediatric trauma center must annually admit 100 or more injured children younger than 15 years (CD 10–2).

Compendium of Changes

Key:	Resources 2006 Green Book Criteria (no compatabile CD in the Orange)	Resources 2014 Orange Book Criteria
PTC I, II	10-4 and 10-5 All pediatric trauma centers must have a pediatric trauma program manager or coordinator and a pediatric trauma registrar.	All Level I and II pediatric trauma centers must have a dedicated pediatric trauma program manager (CD 10–3)
PTC I, II	See CD10-4	All Level I and II pediatric trauma centers must have a pediatric trauma registrar (CD 10–4).
PTC I	10-6 In a Level I pediatric trauma center, the pediatric trauma program manager or coordinator must be dedicated to the pediatric trauma service.	In a Level I pediatric trauma center, the pediatric trauma program manager must be a full-time position dedicated to the pediatric trauma service (CD 10–5)
PTC I, II	10-7 All pediatric trauma centers must have a pediatric trauma PIPS program.	All pediatric trauma centers must have a pediatric trauma performance improvement and patient safety (PIPS) program (CD 10–6).
PTC I, II	10-8 All pediatric trauma centers must have the following programs: pediatric rehabilitation, child life and family support programs, pediatric social work, child protective services, pediatric injury prevention, community outreach, and education of health professionals and the general public in the care of pediatric trauma patients.	In addition, all pediatric trauma centers must have the following programs: pediatric rehabilitation, child life and family support programs, pediatric social work, child protective services, pediatric injury prevention, community outreach, and education of health professionals and the general public in the care of pediatric trauma patients (CD 10–7).
PTC I, II		Level I and II pediatric trauma centers must have a mechanism in place to assess children for maltreatment (CD 10–8).
PTC I	10-9 A pediatric trauma center must have identifiable pediatric trauma research.	Level I pediatric trauma centers must have identifiable pediatric trauma research (CD 10–9).
PTC I		The pediatric Level I center's research requirement is equivalent to that of adult Level I trauma centers (CD 10–10).
PTC I		In combined Level I adult and pediatric centers, half of the research requirement must be pediatric research (CD 10–11).
PTC I	10-10 A Level I pediatric trauma center must have at least 2 surgeons who are board-certified or board-eligible in pediatric surgery by the American Board of Surgery	A Level I pediatric trauma center must have at least two surgeons who are board certified or eligible for certification by the American Board of Surgery according to current requirements in pediatric surgery (CD 10–12).
PTC I	10-11 There must be 1 board-certified or board-eligible orthopaedic surgeon.	(Level I PTC) On staff, there must be one board-certified surgeon or one surgeon eligible for certification by an appropriate orthopaedic board (see Chapter 9, Clinical Functions: Orthopaedic Surgery) according to the current requirements of that board who also has had pediatric fellowship training (CD 10–13).
PTC I	10-12 There must be 1 board-certified or board-eligible neurosurgeon on staff who have had pediatric fellowship training.	(Level I PTC) Additionally, there must be on staff at least one board-certified surgeon or one surgeon eligible for certification by the American Board of Neurological Surgery (see Chapter 8, Clinical Functions: Neurosurgery) according to current requirements of that board who also has had pediatric fellowship training (CD 10–14).

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Key:	Resources 2006 Green Book Criteria (no compatabile CD in the Orange)	Resources 2014 Orange Book Criteria
PTC I	10-13 There must be 1 additional board-certified or board-eligible orthopaedic surgeon.	(Level I PTC) There must be one additional board-certified orthopaedic surgeon or surgeon eligible for certification by an appropriate orthopaedic board according to the current requirements of that board (CD 10–15), who is identified with demonstrated interests and skills in pediatric trauma care.
PTC I	10-14 There must be 1 additional board-certified or board-eligible neurosurgeon identified with demonstrated interests and skills in pediatric trauma care.	(Level I PTC) There must be one additional board-certified neurosurgeon or surgeon eligible for certification by the American Board of Neurological Surgery according to the current requirements of that board, who is identified with demonstrated interests and skills in pediatric trauma care (CD 10–16).
PTC I	10-15 There must be 2 physicians who are board-certified or board-eligible in pediatric critical care medicine or in pediatric surgery and surgical critical care by the American Board of Surgery.	(Level I PTC) There must be two physicians who are board certified or eligible for certification in pediatric critical care medicine, accorinding to current requirements in in pediatric critical care medicine: or in pediatric surgery and surgical critical care by the American Board of Surgery (CD 10–17).
PTC I	10-16 There must be 2 physicians who are board-certified or board-eligible in pediatric emergency medicine.	(Level I PTC) There must be two physicians who are board certified or eligible for certification by an appropriate emergency medicine board according to current requirements in pediatric emergency medicine (CD 10–18).
PTC I, II	10-17 The pediatric intensive care unit must be staffed by individuals credentialed by the hospital to provide pediatric trauma care in their respective areas.	The pediatric intensive care unit must be staffed by individuals credentialed by the hospital to provide pediatric trauma care in their respective areas (CD 10–19).
PTC I, II	10-18 The pediatric section of the emergency department must be staffed by individuals credentialed by the hospital to provide pediatric trauma care in their respective areas.	The pediatric section of the emergency department (CD 10-20) must be staffed by individuals credentialed by the hospital to provide pediatric trauma care in their respective areas.
PTC II	10-19 In a Level II pediatric trauma center, there must be at least 1 board-certified or board-eligible pediatric surgeon.	In a Level II pediatric trauma center, there must be at least one pediatric surgeon who is board-certified or eligible for certification by the American Board of Surgery according to current requirements in pediatric surgeon (CD 10–21).
PTC II	10-20 Level II pediatric trauma center must have 1 board-certified or board-eligible orthopaedic surgeon	There must be one surgeon who is board-certified or eligible for certification by the appropriate orthopaedic board (CD 10–22) identified with demonstrated interests and skills in pediatric trauma care.
PTC II	10-21 Level II pediatric trauma center must have 1 board-certified or board-eligible neurosurgeon identified with demonstrated interests and skills in pediatric trauma care.	There must be one surgeon who is board-certified or eligible for certification by the appropriate neurosurgical board (CD 10–23) identified with demonstrated interests and skills in pediatric trauma care.
PTC I~~, II~~	10-22 In a Level I pediatric trauma center, the pediatric trauma medical director must have successfully completed board examinations in general surgery.	In a Level I pediatric trauma center, the pediatric trauma medical director must be board certified or eligible for certification by the American Board of Surgery according to current requirements for pediatric surgery or alternatively, a pediatric surgeon who is a Fellow of the American College of Surgeons with a special interest in pediatric trauma care, and must participate in trauma call. (CD 10–24).

Compendium of Changes

Key:	Resources 2006 Green Book Criteria (no compatabile CD in the Orange)	Resources 2014 Orange Book Criteria
PTC I	10-23 In a Level I pediatric trauma center, the pediatric trauma medical director must be board-certified or board-eligible in pediatric surgery.	Merged with CD 10-22
PTC II		In a Level II pediatric trauma center, the pediatric trauma medical director should be a board-certified pediatric surgeon or a surgeon eligible for certification by the American Board of Surgery according to current requirements for pediatric surgery. This individual must be a board-certified general surgeon qualified to serve on the pediatric trauma team as defined in the following paragraph (CD 10–25).
PTC I, II	10-24 There are non-pediatric trained surgeons serving on the pediatric panel with proper qualifications: (1) credentialed by the hospital to provide pediatric trauma care, (2) members of the adult trauma panel, (3) the pediatric trauma medical director has agreed to their having sufficient training and experience in pediatric trauma care, and (4) their performance has been reviewed by the pediatric PIPS program.	When the number of pediatric surgeons on staff is too few to sustain the pediatric trauma panel, general surgeons who are board certified or eligible for certification by the American Board of Surgery according to current requirements may serve on the pediatric trauma team. In this circumstance, they must be credentialed by the hospital to provide pediatric trauma care, be members of the adult trauma panel, and be approved by the pediatric trauma medical director (CD 10–26).
PTC I		At a minimum, a Level I pediatric trauma center must have continuous rotations in trauma surgery for senior residents (Clinical PGY 3–5) who are part of an Accreditation Council for Graduate Medical Education–accredited program (CD 10–27).
PTC I		At a minimum, these rotations should include residency programs in all the following specialties: general surgery, orthopaedic surgery, emergency medicine, and neurosurgery. They may also include support of a pediatric surgical fellowship (CD 10–28).
PTC I, II	10-25 For Level I and II pediatric trauma centers, it is expected that the trauma surgeon be in the emergency department on patient arrival, with adequate advance notification from the field. The maximum acceptable response time is 15 minutes. Response time will be tracked from patient arrival rather than from notification or activation. An 80% attendance threshold must be met for the highest level of activation.	
PTC I, II	10-26 The trauma surgeon is expected to be present in the operating room for all trauma operations. A mechanism for documenting this presence is essential.	

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PTC I, II	10-27 The program must make specialty-specific pediatric education available for other specialists (anesthesiology, neurosurgery, orthopaedic surgery, emergency medicine, radiology, and rehabilitation).	In Level I and II pediatric trauma centers, other specialists (in anesthesiology, neurosurgery, orthopaedic surgery, emergency medicine, radiology, and rehabilitation) providing care to injured children who are not pediatric-trained providers also should have sufficient training and experience in pediatric trauma care and be knowledgeable about current management of pediatric trauma in their specialty. The program must make specialty-specific pediatric education available for these specialists (CD 10–29).
PTC I, II	10-28 An organized pediatric trauma service led by a pediatric trauma medical director must be present.	An organized pediatric trauma service led by a pediatric trauma medical director must be present in Level I and II pediatric trauma centers (CD 10–30).
PTC I, II		The pediatric trauma service must maintain oversight of the patient's management while the patient is in the intensive care unit (CD 10–31).
PTC I, II		The trauma service should work collaboratively with the pediatric critical care providers, although all significant therapeutic decisions must be approved by the trauma service, and the service must be made aware of all significant clinical changes (CD 10–32).
PTC I, II		The surgical director who is board certified in surgical critical care of the pediatric intensive care unit must participate actively in the administration of the unit, as evidenced by the development of pathways and protocols for care of surgical patients in the intensive care unit and in unit-based performance improvement (CD 10–33).
PTC I, II		Pediatric surgeons or trauma surgeons with pediatric privileges must be included in all aspects of the care of injured children admitted to an intensive care unit (CD 10–34).
A/PTC I, II	10-29 Full-service general hospitals providing comprehensive care for adults and children historically have provided the majority of adult and pediatric trauma care in urban and suburban areas. Hospitals that seek verification as an adult and pediatric trauma center must meet the criteria for the verification level sought in each type of center.	
ATCTIC I, II~~, III~~	10-30 and 10-31 Any adult trauma center that annually admits 100 or more injured children younger than 15 years must fulfill the following additional criteria demonstrating its capability to care for the injured child: the trauma surgeons must be credentialed for pediatric trauma care by the hospital's credentialing body , there must be a pediatric emergency department area, a pediatric intensive care area, appropriate resuscitation equipment, and a pediatric-specific trauma PIPS program.	Any adult trauma center that annually admits 100 or more injured children younger than 15 years must fulfill the following additional criteria demonstrating its capability to care for the injured child (CD 2-23).
ATCTIC I, II		The trauma surgeons must be credentialed for pediatric trauma care by the hospital's credentialing body (CD 2-23).

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Key:	Resources 2006 Green Book Criteria (no compatabile CD in the Orange)	Resources 2014 Orange Book Criteria
ATCTIC I, II~~, III~~	10-31, see 10-30	There must be a pediatric emergency department area, a pediatric intensive care area, appropriate resuscitation equipment, and a pediatric-specific trauma PIPS program (CD 2-24).
ATCTIC I, II~~, III~~	10-32 For adult trauma centers admitting fewer than 100 injured children younger than 15 years must review the care of injured children through their PIPS programs.	For adult trauma centers admitting fewer than 100 injured children younger than 15 years per year, these resources are desirable. These hospitals, however, must review the care of all injured children through their PIPS programs (CD 2-25).
PTC I, II		Level I and II pediatric trauma centers must submit data to the National Trauma Data Bank® (NTDB®) (CD 10–35).
PTC I, II	10-33 There must be a multidisciplinary peer review committee with participation by the trauma medical director or designee and representatives from pediatric/general surgery, orthopaedic surgery, neurosurgery, emergency medicine, critical care medicine, and anesthesia to improve trauma care by reviewing selected deaths, complications, and sentinel events with the objectives of identification of issues and appropriate responses.	There must be a trauma peer review committee chaired by the pediatric trauma medical director with participation by the pediatric /general surgeons and liaisons from pediatric/general surgery, orthopaedic surgery, neurosurgery, emergency medicine, pediatric critical care medicine, anesthesia, and radiology to improve trauma care by reviewing selected deaths, complications, and sentinel events with the objectives of identification of issues and appropriate responses (CD 10–36).
PTC I, II		The aforementioned representatives must attend at least 50% of the trauma peer review meetings, and their attendance must be documented (CD 10–37)
PTC I, II	10-34 Attendance by the required representatives to at least 50% of the multidisciplinary peer review meetings must be documented, and all pediatric and general surgeons on the trauma panel treating children must attend at least 50% of the multidisciplinary peer review meetings.	All pediatric and general surgeons on the pediatric trauma panel treating children must attend at least 50% of the trauma peer review meetings (CD 10–38).
PTC I, II	10-35 In Level I and II pediatric trauma centers, the pediatric trauma medical director and the liaisons from neurosurgery, orthopaedic surgery, emergency medicine, and critical care medicine must each accrue an average of 16 hours annually or 48 hours in 3 years of verifiable external CME, of which at least 12 hours (in 3 years) must be related to clinical pediatric trauma care.	In Level I and II pediatric trauma centers, the pediatric trauma medical director and the liaisons from neurosurgery, orthopaedic surgery, emergency medicine, and critical care medicine must each accrue an average of 16 hours annually or 48 hours in 3 years of verifiable external CME, of which at least 12 hours (in 3 years) must be related to clinical pediatric trauma care (CD 10–39)
PTC I, II		The other general surgeons, orthopaedic surgeons, neurosurgeons, emergency medicine physicians, and critical medicine care physicians who take trauma call in Level I and II pediatric trauma centers also must be knowledgeable and current in the care of injured patients. This requirement may be met by documenting the acquisition of 16 hours of CME per year on average or by demonstrating participation in an internal educational process conducted by the trauma program based on the principles of practice-based learning and the PIPS program (CD 10–41).

Compendium of Changes

Key:	Resources 2006 Green Book Criteria (no compatabile CD in the Orange)	Resources 2014 Orange Book Criteria
I, II, III	11-1 Anesthesiology services are promptly available for emergency operations.	Anesthesiology services are critical in the management of severely injured patients and must be available within 30 minutes for emergency operations (CD 11–1)
I, II, III	11-2 Anesthesiology services are promptly available for airway problems.	Anesthesiology services are critical in the management of severely injured patients and must be available within 30 minutes for managing airway problems (CD 11–2).
I, II	11-3 There is an anesthesiologist liaison designated to the trauma program.	The anesthetic care of injured patients in a Level I or II trauma center must be organized and supervised by an anesthesiologist who is highly experienced and committed to the care of injured patients and who serves as the designated liaison to the trauma program (CD 11–3).
I, II, III		In Level I, II, and III trauma centers, a qualified and dedicated physician anesthesiologist must be designated as the liaison to the trauma program (CD 11-3)
I, II	11-4 Anesthesia services in Level I trauma centers are available in-house 24 hours a day.	Anesthesia services in Level I and II trauma centers must be available in-house 24 hours a day (CD 11–4).
I, II	11-5 When anesthesiology chief residents or CRNAs are used to fulfill availability requirements, the staff anesthesiologist on call is (1) advised, (2) promptly available or all times, and (3) present for all operations.	When anesthesiology senior residents or CRNAs are used to fulfill availability requirements, the attending anesthesiologist on call must be advised, available within 30 minutes at all times, and present for all operations (CD 11–5).
I, II	11-6 The availability of the anesthesia services and the absence of delays in airway control or operations is documented by the hospital PIPS process.	The availability of anesthesia services and the absence of delays in airway control or operations must be documented by the hospital performance improvement and patient safety (PIPS) process (CD 11–6).
~~II,~~ III	11-7 Anesthesia services are available 24 hours a day and present for all operations.	In Level III hospitals, in-house anesthesia services are not required, but anesthesiologists or CRNAs must be available within 30 minutes (CD 11–7).
~~II,~~ III	11-8 In trauma centers without in-house anesthesia services, protocols are in place to ensure the timely arrival at the bedside of the anesthesia provider.	In Level III trauma centers without in-house anesthesia services, protocols must be in place to ensure the timely arrival at the bedside by the anesthesia provider within 30 minutes of notification and request.(CD 11–8).
~~II,~~ III	11-9 In a center without anesthesia services, there is documentation of the presence of physicians skilled in emergency airway management.	Under these circumstances, the presence of a physician skilled in emergency airway management must be documented (CD 11–9).
III	11-10 Availability of anesthesia services and the absence of delays in airway control or operations are documented in the hospital PIPS process.	The availability of anesthesia services and delays in airway control or operations must be documented by the hospital PIPS process (CD 11–6).
I, II	11-11 All anesthesiologists taking call have successfully completed an anesthesiology residency.	All anesthesiologists taking call must have successfully completed an anesthesia residency program (CD 11–10).
I, II		Furthermore, in Level I and II trauma centers, anesthesiologists taking call must be currently board certified in anesthesiology (CD 11–11).

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I, II		Board certification or eligibility for certification is essential for anesthesiologists who take trauma call in Level I and II trauma centers (CD 11–11).
I, II, III	11-12 The anesthesia liaison has been identified.	
I, II, III	11-13 The anesthesia resident participates in the trauma PIPS process.	In Level I, II, and III trauma centers participation in the trauma PIPS program by the anesthesia liaison is essential (CD 11–12).
I, II, III	11-14 The anesthesiology representative or designee to the trauma program attends at least 50% of the multidisciplinary peer review meetings.	The anesthesiology liaison to the trauma program must attend at least 50 percent of the multidisciplinary peer review meetings, with documentation by the trauma PIPS program (see Chapter 16, Performance Improvement and Patient Safety) (CD 11–13).
I, II	11-15 The operating room is adequately staffed and immediately available. In a Level 1 trauma center, this criterion is met by having a complete operating team in the hospital at all times, with individuals who are dedicated only to the operating room. **SEE FAQ**	An operating room must be adequately staffed and available within 15 minutes at Level I and II trauma centers (CD 11–14).
I, II	11-16 The operating room team is fully dedicated to the duties in the operating room and does not have functions requiring its presence outside the operating room.	In Level I and II trauma centers, if the first operating room is occupied, an adequately staffed additional room must be available (CD 11–15).
I, II	11-17 There is a mechanism for providing additional staff for a second operating room when the first operating room is occupied.	Availability of the operating room personnel and timeliness of starting operations must be continuously evaluated by the trauma PIPS process and measures must be implemented to ensure optimal care (CD 11–16).
~~II,~~ III	11-18 The operating room is adequately staffed and immediately available. **SEE FAQ**	In Level III trauma centers, an operating room must be adequately staffed and available within 30 minutes (CD 11–17).
~~II,~~ III	11-19 The PIPS program evaluates operating room availability and delays when an on-call team is used.	If an on-call team is used, the availability of operating room personnel and the timeliness of starting operations must be continuously evaluated by the trauma PIPS process, and measures must be implemented to ensure optimal care (CD 11–18).
I, II, III	11-20 The operating room has the essential equipment.	Level I, II, and III trauma centers should have the necessary operating room equipment for the patient populations they serve. All trauma centers must have rapid fluid infusers, thermal control equipment for patients and resuscitation fluids, intraoperative radiologic capabilities, equipment for fracture fixation, and equipment for bronchoscopy and gastrointestinal endoscopy (CD 11–19).
I, II	11-21 Trauma centers have the necessary equipment for a craniotomy.	Level I and II trauma centers must have the necessary equipment to perform a craniotomy (CD 11–20)

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Key:	Resources 2006 Green Book Criteria (no compatabile CD in the Orange)	Resources 2014 Orange Book Criteria
III	11-22 There is craniotomy equipment in the Level III trauma center that offers neurosurgery services.	Level III trauma centers that provide neurosurgical services must have the necessary equipment to perform a craniotomy (CD 11–20). Only Level III trauma centers that do not offer neurosurgery services are not required to have craniotomy equipment.
I		Level I trauma centers must have cardiothoracic surgery capabilities available 24 hours per day and should have cardiopulmonary bypass equipment (CD 11–21).
I, II	11-23 The trauma center has cardiopulmonary bypass and an operating microscope available 24 hours per day.	In Level I and Level II trauma centers, if cardiopulmonary bypass equipment is not immediately available, a contingency plan, including immediate transfer to an appropriate center and 100 percent performance improvement review of all patients transferred, must be in place (CD 11–22).
I		Level I trauma centers must have an operating microscope available 24 hours per day (CD 11–23).
I, II, III	11-24 The PACU has qualified nurses available 24 hours per day as needed during the patient's post-anesthesia recovery phase.	At Level I, II, and III trauma centers, a PACU with qualified nurses must be available 24 hours per day to provide care for the patient if needed during the recovery phase (CD 11–24).
I, II, III	11-25 The PACU is covered by a call team from home with documentation by the PIPS program that PACU nurses are available and delays are not occurring.	If this availability requirement is met with a team on call from outside the hospital, the availability of the PACU nurses and compliance with this requirement must be documented by the PIPS program (CD 11–25).
I, II, III	11-26 (I, II, III) The PACU has the necessary equipment to monitor and resuscitate patients.	The PACU must have the necessary equipment to monitor and resuscitate patients, consistent with the process of care designated by the institution (CD 11–26).
I, II, III	11-27 The PIPS process ensures that the PACU has the necessary equipment to monitor and resuscitate patients.	The PIPS program, at a minimum, must address the need for pulse oximetry, end-tidal carbon dioxide detection, arterial pressure monitoring, pulmonary artery catheterization, patient rewarming, and intracranial pressure monitoring (CD 11–27).
I, II, III	11-28 Radiologists are promptly available, in person or by teleradiology, when requested, for the interpretation of radiographs, performance of complex imaging studies, or interventional procedures.	In Level I, II, and III trauma centers, qualified radiologists must be available within 30 minutes in person or by teleradiology for the interpretation of radiographs. (CD 11-32)
I, II		In Level I and II trauma centers qualified radiologists must be available within 30 minutes to perform complex imaging studies, or interventional procedures (CD 11-33).
I, II, III	11-29 Diagnostic information is communicated in a written form and in a timely manner.	In Level I, II, and III trauma centers diagnostic information must be communicated in a written or electronic form and in a timely manner (CD 11–34).
I, II, III	11-30 Critical information is verbally communicated to the trauma team.	Critical information deemed to immediately affect patient care must be verbally communicated to the trauma team in a timely manner (CD 11–35).

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Key:	Resources 2006 Green Book Criteria (no compatabile CD in the Orange)	Resources 2014 Orange Book Criteria
I, II, III	11-31 Final reports accurately reflect communications, including changes between preliminary and final interpretations.	The final report must accurately reflect the chronology and content of communications with the trauma team, including changes between the preliminary and final interpretations (CD 11–36).
I, II, III	11-32 Changes in interpretation are monitored through the PIPS program.	Changes in interpretation between preliminary and final reports, as well as missed injuries, must be monitored through the PIPS program (CD 11–37).
I, II	11-33 There is at least 1 radiologist appointed as liaison to the trauma program.	In Level I and II facilities, a radiologist must be appointed as liaison to the trauma program (CD 11–38).
I, II		The radiologist liaison must attend at least 50 percent of peer review meetings and should educate and guide the entire trauma team in the appropriate use of radiologic services (CD 11–39).
I, II		In Level I and II trauma centers, participation in the trauma PIPS program process by radiologists is essential (CD 11–40).
I, II	11-34 Radiology participates in the trauma PIPS program by at least being involved in protocol development and trend analysis that relate to diagnostic imaging.	At a minimum, radiologists must be involved in protocol development and trend analysis that relate to diagnostic imaging (CD 11–41).
I, II		Level I and II facilities must have a mechanism in place to view radiographic imaging from referring hospitals within their catchment area (CD 11–42).
I, II		Board certification or eligibility for certification by the current standard requirements is essential for radiologists who take trauma call in Level I and II trauma centers (CD 11–43).
I, II, III	11-35 The trauma center has policies designed to ensure that trauma patients who may require resuscitation and monitoring are accompanied by appropriately trained providers during transportation to and while in the radiology department.	The trauma center must have policies designed to ensure that trauma patients who may require resuscitation and monitoring are accompanied by appropriately trained providers during transportation to, and while in, the radiology department (CD 11–28).
I, II, III, IV	11-36 Conventional radiography and CT are available in all trauma centers 24 hours per day.	Conventional radiography must be available in all trauma centers 24 hours per day (CD 11–29).
I, II, III		Computed tomography (CT) must be available in Levels I, II, and III trauma centers 24 hours per day (CD 11–30)
I, II	11-37 There is an in-house radiographer at Level I and II trauma centers. **SEE FAQ**	An in-house radiology technologist and CT technologist are required at Level I and II trauma centers (CD 11–31).
I, II	11-38 In a Level I trauma center, there is an in-house CT technologist.	Merged with CD 11-31
~~II,~~ III	11-39 When the CT technologist responds from outside the hospital, the PIPS program documents the response time. **SEE FAQ**	In Level III centers, if the CT technologist takes call from outside the hospital, the PIPS program must document the technologist's time of arrival at the hospital (CD 11–47).
I, II	11-40 Conventional catheter angiography and sonography are available 24 hours per day.	Interventional radiologic procedures and sonography must be available 24 hours per day at Level I and II trauma centers (CD 11–44).

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I, II	11-41 MRI capability is available 24 hours per day at Level I trauma centers.	Magnetic resonance imaging (MRI) capability must be available 24 hours per day at Level I and II trauma centers (CD 11–45).
I, II	11-42 The PIPS program documents the appropriate timeliness of the arrival of the MRI technologist.	The MRI technologist may respond from outside the hospital; however, the PIPS program must document and review arrival within 1 hour of being called. This time should meet current clinical guidelines (CD 11–46).
I	11-43 There is a surgically directed ICU physician team.	In a Level I trauma center, a surgically directed ICU physician team must be led by a surgeon boarded in surgical critical care, and critically ill trauma patients should be cared for in a designated ICU (CD 11–48).
I		The ICU must be staffed with a dedicated ICU physician team led by the ICU director (CD 11–50).
I		[Level I] If the trauma attending provides coverage, a backup ICU attending must be identified and readily available (CD 11–52).
I	11-44 The surgical director or coordinator of the ICU has the appropriate training and experience for the role.	
II, III	11-45 The trauma center has a surgical director or co-director for the ICU who is responsible for setting policies and administration related to trauma ICU patients.	In Level II and III trauma centers, a surgeon must serve as co-director or director of the ICU and be actively involved in, and responsible for, setting policies and administrative decisions related to trauma ICU patients (CD 11–53).
I, II, III	11-46 The trauma surgeon remains in charge of patients in the ICU.	
~~I, II~~	11-47 Physician coverage of critically ill trauma patients must be promptly available 24 hours per day.	Appropriately trained physicians must be available in-house within 15 minutes to provide care for the ICU patients 24 hours per day (CD 11–51).
~~I,~~ II	11-48 Physicians must be capable of a rapid response to deal with urgent problems as they arise in critically ill trauma patients.	In Level II trauma centers, physician coverage of critically ill trauma patients must be available within 15 minutes 24 hours per day for interventions by a credentialed provider (CD 11–55).
III	11-49 When a critically ill trauma patient is treated locally, there must be a mechanism in place to provide prompt availability of ICU physician coverage 24 hours per day.	In Level III trauma centers, physician coverage of the ICU must be available within 30 minutes, with a formal plan in place for emergency coverage (CD 11–56).
I	11-50 The surgical director of the ICU must have obtained critical care training during residency or fellowship and must have expertise in perioperative and post-injury care of injured patients.	
I	11-51 The surgical director of the ICU must have added certification in surgical critical care from the American Board of Surgery or must have fulfilled the Alternate Pathway for critical care. **SEE FAQ**	A surgeon with current board certification in surgical critical care must be designated as the ICU director (CD 11–49).
I		The ICU team may be staffed by critical care physicians from different specialties but must remain surgically directed as noted above (CD 11-49).

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Key:	Resources 2006 Green Book Criteria (no compatabile CD in the Orange)	Resources 2014 Orange Book Criteria
II, III	11-52 The surgical director or the surgical co-director must be a surgeon, who is credentialed by the hospital to care for ICU patients, and who participates in the PIPS process.	In Level II and III facilities, the ICU director or co-director must be a surgeon who is currently board certified or eligible for certification by the current standard requirements (CD 11–54).
I, II, III	11-53 The trauma service retains responsibility for patients and coordinates all therapeutic decisions appropriate for its level.	In Level I, II, and III trauma centers, the trauma surgeon must retain responsibility for the patient and coordinate all therapeutic decisions (CD 11–58).
I, II, III	11-54 The trauma surgeon is kept informed of and concurs with major therapeutic and management decisions made by the ICU team.	Many of the daily care requirements can be collaboratively managed by a dedicated ICU team, but the trauma surgeon must be kept informed and concur with major therapeutic and management decisions made by the ICU team (CD 11–59).
I	11-55 The patients in Level I facilities have in-house physician coverage for ICU at all times. **SEE FAQ FOR 11.56**	
I, II, III, IV	11-56 Coverage of emergencies in the ICU does not leave the emergency department without appropriate physician coverage. **SEE FAQ**	For all levels of trauma centers, the PIPS program must document that timely and appropriate ICU care and coverage are being provided (CD 11–60).
I, II, III		In all Level I, II, and III trauma centers, the timely response of credentialed providers to the ICU must be continuously monitored as part of the PIPS program (CD-11-60).
I, II, III		[Level I, II and III] There must be a designated ICU liaison to the trauma service (CD 11–61).
I, II, III		This liaison must attend at least 50 percent of the multidisciplinary peer review meetings, with documentation by the trauma PIPS program (CD 11–62).
I, II		The ICU liaison to the trauma program at Level I and II centers must accrue an average of 16 hours annually or 48 hours in 3 years of verifiable external trauma-related continuing medical education (CME) (CD 11–63).
I, II		This requirement must be documented by the acquisition of 16 hours of trauma CME per year, on average, or through an internal educational process conducted by the trauma program and the ICU liaison based on the principles of practice-based learning and the PIPS program (CD 11–64).
III	11-57 The PIPS program reviews admissions and transfers to ensure appropriateness.	In Level III trauma centers, the PIPS program must review all ICU admissions and transfers of ICU patients to ensure that appropriate patients are being selected to remain at the Level III center vs. being transferred to a higher level of care (CD 11–57).
I, II, III	11-58 A qualified nurse is available 24 hours per day to provide care during the ICU phase.	At Level I, II, and III trauma centers, qualified critical care nurses must be available 24 hours per day to provide care for patients during the ICU phase (CD 11–65).
I, II, III	11-59 The patient/nurse ratio does not exceed 2:1 for critically ill patients in the ICU.	The patient-to-nurse ratio in the ICU must not exceed two to one (CD 11–66).

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I, II, III	11-60 The ICU has the necessary equipment to monitor and resuscitate patients.	The ICU must have the necessary equipment to monitor and resuscitate patients (CD 11–67).
I, II	11-61 Intracranial pressure monitoring equipment is available.	Intracranial pressure monitoring equipment must be available in Level I and II trauma centers for neurotrauma patients (CD 11–68).
III	11-62 There is intracranial pressure monitoring equipment in the Level III center that admits neurotrauma patients.	Intracranial pressure monitoring equipment must be available in Level III trauma centers with neurosurgical coverage that admit neurotrauma patients (CD 11–68).
III		Trauma patients must not be admitted or transferred by a primary care physician without the knowledge and consent of the trauma service, and the PIPS program should monitor adherence to this guideline (CD 11–69).
I	11-63 Level I facilities must have a full spectrum of surgical specialists available. (orthopaedic surgery, neurosurgery, cardiac surgery, thoracic surgery, hand surgery, microvascular surgery, plastic surgery, obstetric and gynecologic surgery, ophthalmology, otolaryngology, and urology)	Level I facilities are prepared to manage the most complex trauma patients and must have available a full spectrum of surgical specialists, including specialists in orthopaedic surgery, neurosurgery, cardiac surgery, thoracic surgery, vascular surgery, hand surgery, microvascular surgery, plastic surgery, obstetric and gynecologic surgery, ophthalmology, otolaryngology, and urology (CD 11–70).
II	11-64 Level II centers must have the following surgical specialists available. (orthopaedic surgery, neurosurgery, thoracic surgery, plastic surgery, obstetric and gynecologic surgery, ophthalmology, otolaryngology, and urology)	Level II centers must have the surgical specialists described for Level I trauma centers and should provide cardiac surgery (CD 11–71). [Level I facilities must have specialists in orthopaedic surgery, neurosurgery, thoracic surgery, vascular surgery, hand surgery, microvascular surgery, plastic surgery, obstetric and gynecologic surgery, ophthalmology, otolaryngology, and urology.
III	11-65 Level III centers must have the availability of orthopaedic surgery.	Level III trauma centers must have the availability and commitment of orthopaedic surgeons (CD 11–72).

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Key:	Resources 2006 Green Book Criteria (no compatabile CD in the Orange)	Resources 2014 Orange Book Criteria
I, II, III		For all patients being transferred for specialty care, such as burn care, microvascular surgery, cardiopulmonary bypass capability, complex ophthalmologic surgery, or high-complexity pelvic fractures, agreements with a similar or higher-qualified verified trauma center should be in place. If this approach is used, a clear plan for expeditious critical care transport, follow-up, and performance monitoring is required (CD 8–5). If complex cases are being transferred out, a contingency plan should be in place and must include the following: • A credentialing process to allow the trauma surgeon to provide initial evaluation and stabilization of the patient. • Transfer agreements with similar or higher-verified trauma centers. • Direct contact with the accepting facility to arrange for expeditious transfer or ongoing monitoring support. • Monitoring of the efficacy of the process by the PIPS programs. Ensure consistent wording through chapters.
I, II	11-66 In a Level I trauma center, medical specialists on staff must include: cardiology, infectious disease, pulmonary medicine, and nephrology and their respective support teams (for example, respiratory therapy, dialysis team, and nutrition support).	In Level I and II trauma centers, medical specialists on staff must include specialists in cardiology, internal medicine, gastroenterology, infectious disease, pulmonary medicine, and nephrology and their respective support teams (for example, respiratory therapy, a dialysis team, and nutrition support) (CD 11–73).
III	11-69 In a Level III facility, internal medicine specialists must be available.	In a Level III facility, internal medicine specialists must be available on the medical staff (CD 11–74).
I, II	11-70 A respiratory therapist is available to care for trauma patients 24 hours per day.	Several support services are required to care for trauma patients. In Level I and II trauma centers, a respiratory therapist must be available in the hospital 24 hours per day (CD 11–75).
III	11-71 There is a respiratory therapist available and on call 24 hours per day.	In Level III centers, there must be a respiratory therapist on call 24 hours per day (CD 11–76).
I, II	11-72 Acute hemodialysis is available.	Acute hemodialysis must be available in Level I and II trauma centers (CD 11–77).
III	11-73 A Level II center has either dialysis capabilities or a transfer agreement.	Level III trauma centers that do not have dialysis capabilities must have a transfer agreement in place (CD 11–78).
I, II	11-74 Nutrition support services are available.	Nutrition support services must be available in Level I and II centers (CD 11–79).
I, II, III, IV	11-75 Laboratory services are available 24 hours per day for the standard analyses of blood, urine, and other body fluids, including microsampling when appropriate.	In trauma centers of all levels, laboratory services must be available 24 hours per day for the standard analyses of blood, urine, and other body fluids, including microsampling when appropriate (CD 11–80).

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Key:	Resources 2006 Green Book Criteria (no compatabile CD in the Orange)	Resources 2014 Orange Book Criteria
I, II, III, IV	11-76 The blood bank must be capable of blood typing and cross matching.	The blood bank must be capable of blood typing and cross-matching (CD 11–81).
I, II~~, III~~	11-77 The blood bank must have an adequate supply of red blood cells, fresh frozen plasma, platelets, cryoprecipitate, and appropriate coagulation factors to meet the needs of injured patients.	For Level I and II centers, the blood bank must have an adequate in-house supply of red blood cells, fresh frozen plasma, platelets, cryoprecipitate, and appropriate coagulation factors to meet the needs of injured patients (CD 11–82).
III		In Level III centers, the blood bank must have an adequate supply of packed red blood cells and fresh frozen plasma available within 15 minutes (CD 11–83).
I, II, III, IV		Trauma centers of all levels must have a massive transfusion protocol developed collaboratively between the trauma service and the blood bank (CD 11–84).
I, II, III	11-78 The capability for coagulation studies, blood gases, and microbiology must be available 24 hours a day.	Coagulation studies, blood gas analysis, and microbiology studies must be available 24 hours per day (CD 11–85).
I, II, IiI, IV		Advanced practitioners who participate in the initial evaluation of trauma patients must demonstrate current verification as an Advanced Trauma Life Support® provider (CD 11–86).
I, II, IiI, IV		The trauma program must also demonstrate appropriate orientation, credentialing processes, and skill maintenance for advanced practitioners, as witnessed by an annual review by the trauma medical director (CD 11–87).
I, II	12-1 In Level I and II trauma centers, rehabilitation services must be available within its physical facilities or to a freestanding rehabilitation hospital, through a transfer agreement.	In Level I and II trauma centers, rehabilitation services must be available within the hospital's physical facilities or as a freestanding rehabilitation hospital, in which case the hospital must have transfer agreements (CD 12–1).
I, II		Rehabilitation consultation services, occupational therapy, speech therapy, physical therapy, and social services are often needed in the critical care phase and must be available in Level I and II trauma centers (CD 12–2).
I, II, III	12-2 The hospital must provide physical therapy services.	Physical therapy (CD 12–3) must be provided in Level I, II, and III trauma centers.
I, II, III	12-3 The hospital must provide social services.	Social services (CD 12–4) must be provided in Level I, II, and III trauma centers.
I, II	12-4 The hospital must provide occupational therapy services.	Occupational therapy (CD 12–5) must be provided in Level I and II centers.
I, II	12-5 The hospital must provide speech therapy services.	Speech therapy (CD 12–6) must be provided in Level I and II centers.
I, II	12-6 Rehabilitation consultation services, occupational therapy, speech therapy, physical therapy, and social services are available during the acute phase of care.	In Level I and II trauma centers, these services must be available during the acute phase of care, including intensive care (CD 12–7).
II	13-1 A rural Level II center provides the same level of care as a nonrural Level II trauma center.	

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I, II, III, IV		Direct contact of the physician or midlevel provider with a physician at the receiving hospital is essential (CD 4–1).
III, IV		Transfer guidelines and agreements between facilities are crucial and must be developed after evaluating the capabilities of rural hospitals and medical transport agencies (CD 2–13).
I, II, III, IV		All transfers must be evaluated as part of the receiving trauma center's performance improvement and patient safety (PIPS) process (CD 4–3), and feedback should be provided to the transferring center.
I, II		Level I and II centers must be able to read images from referring centers (CD 11–41
I, II, III, IV		The foundation for evaluation of a trauma system is the establishment and maintenance of a trauma registry (CD 15–1).
I, II, III, IV	13-2 The PIPS process demonstrates the appropriate care or response by providers.	Issues that must be reviewed will revolve predominately around (1) system and process issues such as documentation and communication; (2) clinical care, including identification and treatment of immediate life- threatening injuries (ATLS®); and (3) transfer decisions (CD 16-10).
I, II, III, IV		The best possible care for patients must be achieved with a cooperative and inclusive program that clearly defines the role of each facility within the system (CD 1–1).
I, II, III, IV		Trauma centers that refer burn patients to a designated burn center must have in place written transfer agreements with the referral burn center (CD 14–1)
I, II, III, IV	15-1 Trauma registry data are collected and analyzed.	Trauma registry data must be collected and analyzed by every trauma center (CD 15–1).
I, II, III	15-2 The data are submitted to the National Trauma Data Bank. **SEE FAQ**	Finally, these data must be collected in compliance with the National Trauma Data Standard (NTDS) and submitted to the National Trauma Data Bank® (NTDB®) every year in a timely fashion so that they can be aggregated and analyzed at the national level (CD 15–2).
I, II, III, IV	15-3 The trauma center uses the registry to support the PIPS process.	The trauma registry is essential to the performance improvement and patient safety (PIPS) program and must be used to support the PIPS process (CD 15–3).
I, II, III, IV		Furthermore, these findings must be used to identify injury prevention priorities that are appropriate for local implementation (CD 15–4).
I, II, III		All trauma centers must use a risk stratified benchmarking system to measure performance and outcomes (CD 15-5).
I, II, III, IV	15-4 The trauma registry has at least 80% of the trauma cases entered within 60 days of discharge	Trauma registries should be concurrent. At a minimum, 80 percent of cases must be entered within 60 days of discharge (CD 15–6)

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Key:	Resources 2006 Green Book Criteria (no compatabile CD in the Orange)	Resources 2014 Orange Book Criteria
I, II, III		[Registrar] They must attend or have previously attended two courses within 12 months of being hired: (1) the American Trauma Society's Trauma Registrar Course or equivalent provided by a state trauma program; and (2) the Association of the Advancement of Automotive Medicine's Injury Scaling Course (CD 15–7).
I, II, III, IV	15-5 The trauma program ensures that trauma registry confidentiality measures are in place.	The trauma program must ensure that appropriate measures are in place to meet the confidentiality requirements of the data (CD 15–8).
I, II, III		One full-time equivalent employee dedicated to the registry must be available to process the data capturing the NTDS data set for each 500–750 admitted patients annually (CD 15–9).
I, II, III, IV	15-6 There are strategies for monitoring data validity for the trauma registry.	Strategies for monitoring data validity are essential (CD 15–10).
I, II, III	16-1 The trauma center demonstrates a clearly defined PIPS program for the trauma population.	
I, II, III		Trauma centers must have a PIPS program that includes a comprehensive written plan outlining the configuration and identifying both adequate personnel to implement that plan and an operational data management system (CD 16–1).
I, II, III, IV	16-2 The PIPS program is supported by a reliable method of data collection that consistently gathers valid and objective information necessary to identify opportunities for improvement.	The PIPS program must be supported by a reliable method of data collection that consistently obtains the information necessary to identify opportunities for improvement (CD 15–1).
I, II, III, IV		The processes of event identification and levels of review must result in the development of corrective action plans, and methods of monitoring, reevaluation, and benchmarking must be present (CD 2–17).
I, II, III		Problem resolution, outcome improvements, and assurance of safety ("loop closure") must be readily identifiable through methods of monitoring, reevaluation, benchmarking, and documentation (CD 16–2).
I, II, III	16-3 The program is able to demonstrate that the trauma registry supports the PIPS process.	The trauma PIPS program must integrate with the hospital quality and patient safety effort and have a clearly defined reporting structure and method for provision of feedback (CD 16–3).
I, II, III	16-4 The process of analysis includes multidisciplinary review.	
I, II, III, IV	16-5 The process of analysis occurs at regular intervals to meet the needs of the program.	Peer review must occur at regular intervals to ensure that the volume of cases is reviewed in a timely fashion (CD 2–18).
I, II, III	16-6 The results of analysis define corrective strategies.	
I, II, III	16-7 The results of analysis and corrective strategies are documented.	

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I, II, III, IV	16-8 The trauma program is empowered to address issues that involve multiple disciplines.	Because the trauma PIPS program crosses many specialty lines, it must be empowered to address events that involve multiple disciplines and be endorsed by the hospital governing body as part of its commitment to optimal care of injured patients (CD 5–1).
I, II, III, IV	16-9 The trauma program has adequate administrative support and defined lines of authority that ensure comprehensive evaluation of all aspects of trauma care.	There must be adequate administrative support to ensure evaluation of all aspects of trauma care (CD 5–1).
I, II, III, IV	16-10 The trauma program has a medical director with the authority and administrative support to lead the program.	The trauma medical director and trauma program manager must have the authority and be empowered by the hospital governing body to lead the program (CD 5–1).
I, II, III	16-11 The trauma medical director has sufficient authority to set the qualifications for the trauma service members.	The trauma medical director must have sufficient authority to set the qualifications for the trauma service members, including individuals in specialties that are routinely involved with the care of the trauma patient (CD 5–11).
I, II, III	16-14 The trauma center is able to separately identify the trauma patient population for review.	
I, II, III	16-12 The trauma medical director has sufficient authority to recommend changes for the trauma panel based upon performance reviews.	Moreover, the trauma medical director must have authority to recommend changes for the trauma panel based on performance review (CD 5–11).
I, II, III	16-13 Identified problem trends undergo multidisciplinary peer review by the Trauma Peer Review Committee.	Mortality data, adverse events and problem trends, and selected cases involving multiple specialties must undergo multidisciplinary trauma peer review (CD 16–14)
I, II, III, IV		Once an event is identified, the trauma PIPS program must be able to verify and validate that event (CD 16–11).
I, II, III	16-15 There is a process to address trauma program operational issues.	There must be a process to address trauma program operational events (CD 16–12).
I, II, III	16-16 There is documentation reflecting the review of operational issues and, when appropriate, the analysis and proposed corrective actions.	Documentation (minutes) reflects the review of operational events and, when appropriate, the analysis and proposed corrective actions (CD 16–13).
I, II, III, IV	16-17 The process identifies problems.	Sufficient mechanisms must be available to identify events for review by the trauma PIPS program (CD 16–10).
I, II, III	16-18 The process demonstrates problem resolution (loop closure).	An effective performance improvement program demonstrates through clear documentation that identified opportunities for improvement lead to specific interventions that result in an alteration in conditions such that similar adverse events are less likely to occur (CD 16–19).
I, II, III		The peer review committee must be chaired by the TMD (CD 5-25)

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I, II, III	16-19 There is a trauma multidisciplinary peer review committee with participation by the trauma medical director or designee and representatives from general surgery, orthopaedic surgery, neurosurgery, emergency medicine, and anesthesia.	In Level I, II, and III trauma centers, representation from general surgery (CD 6-8), and liaisions to the trauma program from emergency medicine (CD 7–11), orthopaedics (CD 9–16), and anesthesiology (CD 11–13), critical care (CD 11-62)—and for Level I and II centers, neurosurgery (CD 8–13), and radiology (CD 11–39)—must be identified and participate actively in the trauma PIPS program with at least 50 percent attendance at multidisciplinary trauma peer review committee.
III		In Level III centers that do any amount of emergent neurosurgical cases must have also have participation of neurosurgery in the multidisciplinary trauma peer review committee (CD 8-13).
I, II, III		This effort may be accomplished in a variety of formats but must involve the participation and leadership of the trauma medical director (CD 5–10); the group of general surgeons on the call panel; and the liaisons from emergency medicine, orthopaedics, neurosurgery, anesthesia, critical care, and radiology (Level I, II and III, CD 6-8, CD 7-11, CD 9-16, CD 11-13, CD 11-62 - Level I and II centers, CD 8-13 CD 11-39).
I, II, III	16-20 The attendance by the trauma medical director and the specialty representatives is at least 50%.	Each member of the committee must attend at least 50 percent of all multidisciplinary trauma peer review committee meetings (CD 16–15).
I, II, III	16-21 The core general surgeon attendance at the trauma peer review committee is at least 50%.	
I, II, III	16-22 In circumstances when attendance is not mandated ~~(non-core members)~~, the trauma medical director ensures dissemination of information from the trauma peer review committee.	When these general surgeons cannot attend the multidisciplinary trauma peer review meeting, the trauma medical director must ensure that they receive and acknowledge the receipt of critical information generated at the multidisciplinary peer review meeting to close the loop (CD 16–16).
I, II, III	16-23 The trauma medical director documents the dissemination of information from the trauma peer review committee.	
I, II, III	16-24 Evidence of appropriate participation and acceptable attendance is documented in the PIPS process.	
I, II, III	16-25 Deaths are systematically categorized as preventable, non-preventable, or potentially preventable.	The multidisciplinary trauma peer review committee must systematically review mortalities, significant complications, and process variances associated with unanticipated outcomes and determine opportunities for improvement (CD 16–17).

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Key:	Resources 2006 Green Book Criteria (no compatabile CD in the Orange)	Resources 2014 Orange Book Criteria
I, II, III		[A] Mortality Review (CD 16–6). All trauma-related mortalities must be systematically reviewed and those mortalities with opportunities for improvement identified for peer review. 1. Total trauma-related mortality rates. Outcome measures for total, pediatric (younger than 15 years), and geriatric (older than 64 years) trauma encounters should be categorized as follows: a. DOA (pronounced dead on arrival with no additional resuscitation efforts initiated in the emergency department), b. DIED (died in the emergency department despite resuscitation efforts), c. In-hospital (including operating room). 2. Mortality rates by Injury Severity Scale (ISS) subgroups using Table 1.
I, II, III, IV		[B] Trauma surgeon response to the emergency department (CD 2–9). See previous detail.
I, II, III, IV		[C] Trauma team activation (TTA) criteria (CD 5–13). See previous detail
I, II, III, IV		[D] All Trauma Team Activations must be categorized by the level of response and quantified by number and percentage, as shown in Table 2 (CD 5–14, CD 5–15).
I, II, III		[E] Trauma surgeon response time to other levels of TTA, and for back-up call response, should be determined and monitored. Variances should be documented and reviewed for reason for delay, opportunities for improvement, and corrective actions (CD 5–16)
I, II, III		[F] Response parameters for consultants addressing time-critical injuries (for example, epidural hematoma, open fractures, and hemodynamically unstable pelvic fractures) must be determined and monitored (CD 5–16).
I, II, III		[G] Rates of undertriage and overtriage can be calculated after the potential cases identified have been reviewed and validated. These rates must be monitored and reviewed quarterly (CD 16–7).
I, II, III		[H] Trauma patient admissions (NTDS definition) to a nonsurgical service is higher than 10 percent (Level I, II and III: CD 5–18).
I, II		Pediatric (14 years or younger) trauma care. 1. Trauma centers admitting at least 100 pediatric trauma patients annually require a pediatric-specific trauma PIPS program (CD 10–6). 2. Trauma centers admitting less than 100 pediatric trauma patients annually must review each case for timeliness and appropriateness of care (CD 10–6).

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I, II, III, IV		[J] Acute transfers out (CD 9–14). All trauma patients who are diverted (CD 3–4) or transferred (CD 4–3) during the acute phase of hospitalization to another trauma center, acute care hospital, or specialty hospital (for example, burn center, reimplantation center, or pediatric trauma center) or patients requiring cardiopulmonary bypass or when specialty personnel are unavailable must be subjected to individual case review to determine the rationale for transfer, appropriateness of care, and opportunities for improvement. Follow-up from the center to which the patient was transferred should be obtained as part of the case review.
III		[K] Emergency physicians covering in-house emergencies at Level III trauma centers (CD 7–3). See previous detail
I, II, III		[L] Trauma center diversion-bypass hours must be routinely monitored, documented, and reported, including the reason for initiating the diversion policy (CD 3–6), and must not exceed 5 percent.
III		[M] Appropriate neurosurgical care at Level III trauma centers (CD 8–9).
I, II, III		[N] Availability of the anesthesia service (CD 11–4, CD 11-7, CD 11–16, CD 11-18). o In-house anesthesia service (emergency department, intensive care unit, floor, and postanesthesia care unit) must be available for the care of trauma patients o Operating room delays involving trauma patients because of lack of anesthesia support services must be identified and reviewed to determine the reason for delay, adverse outcomes, and opportunities for improvement.
I, II, III		[O] Delay in operating room availability (CD 11–16, CD 11–18) must be routinely monitored. Any case that is associated with a significant delay or adverse outcome must be reviewed for reasons for delay and opportunities for improvement
I, II, III		[P] Response times of operating room and postanesthesia care unit personnel when responding from outside the trauma center (CD 11–16, CD 11–18, CD 11–25) must be routinely monitored. Any case that exceeds the institutionally agreed upon response time and/or is associated with an adverse outcome must be reviewed for reasons for delay and opportunities for improvement.
I, II, III		[Q.] Rate of change in interpretation of radiologic studies (CD 11–32, CD 11–37) should be categorized by RADPEER or similar criteria (describe process/scoring metric used).

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I, II, III		[R] Response times of computed tomography technologist(30 minutes)/magnetic resonance imaging (60 minutes) technologist/interventional radiology team (30 minutes) when responding from outside the trauma center (CD 11–29, CD 11–30, CD 11–31, CD 11–32, CD 11–33, CD 11–34, CD 11–35, CD 11–36, CD 11-37, and CD 11–46.) These times must be routinely monitored, and any case that exceeds the institutionally agreed upon response time or is associated with a significant delay or an adverse outcome must be reviewed for reasons for delay and opportunities for improvement.
I, II, III, IV		[S] Transfers to a higher level of care within the institution (CD 16–8).
I, II, III		[T] Solid Organ donation rate (CD 16–9).
I, II, III, IV		[U] Trauma registry (CD 15–6). See previous detail
I, II, III		[V] Multidisciplinary trauma peer review committee attendance (Level I, II, and III CD 5-10, CD 6–8, CD 7–11, CD 9–16, CD 11–13, CD 11-62 – and for Level I and II CD 8-13 and CD 11–39).
I, II, III	16-26 When a consistent problem or inappropriate variation is identified, corrective actions are taken and documented.	When an opportunity for improvement is identified, appropriate corrective actions to mitigate or prevent similar future adverse events must be developed, implemented, and clearly documented by the trauma PIPS program (CD 16–18).
I, II, III	16-27 The performance improvement program must be consistently functional, with structure and process.	
I, II		In Level I and II trauma centers, the TMD (CD 5-7), trauma program manager (CD 5-24) and the liaisons to the trauma program in emergency medicine (CD 7–12), orthopaedics (CD 9–18), critical care (CD 11–63), and neurosurgery (CD 8–14) must obtain 16 hours annually or 48 hours in 3 years of verifiable, external, trauma-related education (continuing medical education [CME] or CE as appropriate to the discipline).
I, II, III, IV		The trauma center must demonstrate that all trauma patients can be identified for review (CD 15–1).
I, II, III, IV		The trauma PIPS program must be supported by a registry and a reliable method of concurrent data collection that consistently obtains information necessary to identify opportunities for improvement (CD 15–3).
I, II, III		In Level I, II, and III trauma centers, the trauma registry must submit the required data elements to the NTDB (CD 15–2).
I, II, III		All trauma centers must use a risk-adjusted benchmarking system to measure performance and outcomes (CD 15-5).

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I, II, III		To achieve this goal, a trauma program must use clinical practice guidelines, protocols, and algorithms derived from evidenced-based validated resources (new CD 16–4).
I, II, III, IV		All process and outcome measures must be documented within the trauma PIPS program's written plan and reviewed and updated at least annually (CD 16–5).
I		[A] Trauma Center Volume (CD 2–4), See previous detail
I, II, III, IV	17-1 The trauma center is engaged in public and professional education.	All verified trauma centers, however, must engage in public and professional education (CD 17–1).
I, II	17-2 The trauma center provides some means of referral and access to trauma center resources.	Level I and II centers also must provide some means of referral and access to trauma center resources (CD 17–2).
I, II, III	17-3 The trauma center is involved in prevention activities, including public educational activities.	
I	17-4 The Level I trauma center provides and participates in an ATLS® course at least annually. **SEE FAQ**	
I	17-5 A Level I trauma center must provide a continuous rotation in trauma surgery for senior residents (PGY 4 or higher) that is part of an Accreditation Council for Graduate Medical Education- accredited program in any of the following disciplines: general surgery, orthopaedic surgery, or neurosurgery; or support an acute care surgery fellowship consistent with the educational requirements of the American Association for the Surgery of Trauma. **See FAQ (for Pediatric Level I trauma centers – it is PGY 3 or higher)**	At a minimum, a Level I trauma center must have continuous rotations in trauma surgery for senior residents (Clinical PGY 4–5) that are part of an Accreditation Council for Graduate Medical Education–accredited program (CD 17–3). For pediatric Level I centers, the continuous rotation for surgical residents is extended to include clinical PGY 3.
I, II, III	17-6 The hospital provides a mechanism for trauma-related education for nurses involved in trauma care.	In Level I, II, and III trauma centers, the hospital must provide a mechanism to offer trauma-related education to nurses involved in trauma care (CD 17–4).
I, II, III, IV	17-7 All general surgeons and emergency medicine physicians on the trauma team have successfully completed the ATLS® course at least once.	The successful completion of the ATLS® course, at least once, is required in all levels of trauma centers for all general surgeons (CD 6-10), emergency medicine physicians (CD 7-14) and midlevel providers (CD 11-86) on the trauma team.
I, II	17-8 The trauma director and liaison representatives from neurosurgery, orthopaedic surgery, and emergency medicine have accrued an average of 16 hours annually or 48 hours in 3 years of trauma related CME. **SEE FAQ**	The trauma director (CD 5-7) and the liaison representatives from neurosurgery (CD 8-14), orthopaedic surgery (CD 9-18), emergency medicine (CD 7-12), and critical care (CD 11-63) must accrue an average of 16 hours annually, or 48 hours in 3 years, of external trauma-related CME.
I, II	17-9 Other general surgeons, neurosurgeons, orthopaedic surgeons, and emergency medicine specialists who take trauma call have acquired 16 hours of CME per year on average or participated in an internal educational process.	Other members of the general surgery (CD 6-11), neurosurgery (CD 8-15), orthopaedic surgery (CD 9-19), emergency medicine (CD 7-13), and critical care (CD 11-64) specialties who take trauma call also must be knowledgeable and current in the care of injured patients.
I, II, III	18-1 The trauma center participates in injury prevention.	

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I, II, III, IV		Each trauma center must have someone in a leadership position that has injury prevention as part of his or her job description (CD 18-2)
I~~, II~~	18-2 The trauma center has a prevention coordinator with a demonstrated job description and salary support.	In Level I centers, this individual must be a prevention coordinator (separate from the trauma program manager) with a job description and salary support (CD 18–2).
I, II, III, IV	18-3 The trauma center demonstrates the presence of prevention activities that center on priorities based on local data.	Trauma centers must have an organized and effective approach to injury prevention and must prioritize those efforts based on local trauma registry and epidemiologic data (CD 18–1).
I, II	18-4 The trauma center demonstrates collaboration with or participation in national, regional, or state programs.	A trauma center's prevention program must include and track partnerships with other community organizations (CD 18–6).
I, II	18-5 The trauma center has a mechanism to identify patients who are problem drinkers.	
I, II, III,IV		Universal screening for alcohol use must be performed for all injured patients and must be documented (CD 18–3)
I, II	18-6 The trauma center has the capability to provide intervention or referral for patients identified as problem drinkers. **SEE FAQ**	At Level I and II trauma centers, all patients who have screened positive must receive an intervention by appropriately trained staff, and this intervention must be documented (CD 18–4).
I, II		Level I and II trauma centers must implement at least two programs that address one of the major causes of injury in the community (CD 18–5).
I	19-1 The Level I trauma center meets either the minimum of 20 peer-reviewed articles published in Journals included in *Index Medicus* in 3 years or the criterion of 4 of 7 scholarly activities as listed in the chapter and 10 peer-reviewed articles published in journals included in *Index Medicus* in 3 years.	For a Level I trauma center, at a minimum, a program must have 20 peer-reviewed articles published in journals included in Index Medicus or PubMed in a 3-year period (CD 19–1).
I	19-2 The research resulted from work related to the trauma center.	These publications must result from work related to the trauma center or the trauma system in which the trauma center participates (19-2)
I	19-3 The articles include authorship or co-authorship by a member of the general surgery trauma team.	Of the 20 articles, at least one must be authored or co-authored by members of the general surgery trauma team (CD 19–3).
I	19-4 Of the 20 articles there is at least 1 that includes authorship or co-authorship by members of the general surgery trauma team and at least 1 each from 3 of 6 disciplines: neurosurgery, emergency medicine, orthopaedics, radiology, anesthesia, and rehabilitation. **SEE FAQ**	Additionally, at least one article each from three of the following disciplines is required: basic sciences, neurosurgery, emergency medicine, orthopaedics, radiology, anesthesia, vascular surgery, plastics/maxillofacial surgery, critical care, cardiothoracic surgery, rehabilitation, and nursing (CD 19–4).
I, II, III, IV		CD 19-5 and CD 19-6, skipped
PTC I		Level I pediatric trauma centers must have identifiable pediatric trauma research. The pediatric Level I center's research requirement is equivalent to that of adult Level 1 trauma centers (CD 10–10).
PTC I		In combined Level I adult and pediatric centers, half of the research requirement must be pediatric research (CD 10–11).

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I	19-5 The trauma center meets the alternative criteria for research: *10 peer-reviewed articles published in journals included in *Index Medicus* resulting from work in the trauma center with at least 1 authored or coauthored by members of the general surgery trauma team and at least 1 each from 3 of 6 disciplines (neurosurgery, emergency medicine, orthopaedics, radiology, anesthesia, and rehabilitation). AND * 4 of 7 scholarly activities as stated in Chapter 19, Trauma Research & Scholarship. **SEE FAQ**	In the alternate method, a Level I program must have the following (CD 19–7) a. A program must have 10 peer-reviewed articles published in journals included in Index Medicus or PubMed in a 3-year period. These articles must result from work related to the trauma center or the trauma system in which the trauma center participates. Of the 10 articles, at least one must be authored or co-authored by members of the general surgery trauma team, and at least one article each from three of the following disciplines is required: basic sciences as related to injury, neurosurgery, emergency medicine, orthopaedics, radiology, anesthesia, vascular surgery, plastics/maxillofacial surgery, critical care, cardiothoracic surgery, rehabilitation, and nursing. Trauma-related articles authored by members of other disciplines or work done in collaboration with other trauma centers and participation in multicenter investigations may be included in the remainder. b. Of the following seven trauma-related scholarly activities, four must be demonstrated: • Evidence of leadership in major trauma organizations, which includes membership in trauma committees of any of the regional or national trauma organizations. • Demonstrated peer-reviewed funding for trauma research from a recognized government or private agency or organization. • Evidence of dissemination of knowledge that includes review articles, book chapters, technical documents, Web-based publications, videos, editorial comments, training manuals, and trauma-related educational materials or multicenter protocol development. • Display of scholarly application of knowledge as evidenced by case reports or reports of clinical series in journals included in MEDLINE. • Participation as a visiting professor or invited lecturer at national or regional trauma conferences.
I	19-5 (Continued)	----CD 19-7, Continued from above --- • Support of resident participation in mentoring scholarly activity, including laboratory experiences; clinical trials; resident trauma paper competitions at the state, regional, or national level; and other resident trauma presentations. • Mentorship of fellows, as evidenced by the development or maintenance of a recognized trauma, critical care, or acute care surgery fellowship.

Compendium of Changes

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I	19-6 The administration of the trauma center demonstrates support of the research program.	Finally, the administration of a Level I trauma center must demonstrate support for the research program by, for example, providing basic laboratory space, sophisticated research equipment, advanced information systems, biostatiscal support, salary support for basic and translational scientists, or seed grants for less experienced faculty (CD 19–8).
I, II, III, IV	20-1 The hospital meets the disaster-related requirements of JCAHO.	Trauma centers must meet the disaster-related requirements of the Joint Commission (CD 20–1).
I, II, III	20-2 A trauma panel surgeon is a member of the hospital's disaster committee.	A surgeon from the trauma panel must be a member of the hospital's disaster committee (CD 20–2).
I, II, III, IV	20-3 Hospital drills that test the individual hospital's disaster plan are conducted at least every 6 months.	Hospital drills that test the individual hospital's disaster plan must be conducted at least twice a year, including actual plan activations that can substitute for drills (CD 20–3)
I, II, III, IV	20-4 The trauma center has a hospital disaster plan described in the hospital disaster manual.	All trauma centers must have a hospital disaster plan described in the hospital's policy and procedure manual or equivalent (CD 20–4).
I, II, III	21-1 The trauma center has an established relationship with a recognized OPO.	The trauma center must have an established relationship with a recognized OPO (CD 21–1).
I, II, III	21-2 There are written policies for triggering notification of the OPO.	A written policy must be in place for triggering notification of the regional OPO (CD 21–2).
I, II, III	21-3 The PIPS process reviews the organ donation rate.	The trauma center must review its organ donation rate annually (CD 16.9).
I, II, III, IV	21-4 There are written protocols for declaration of brain death.	It is essential that each trauma center (Levels I, II, III, and IV) have written protocols defining the clinical criteria and confirmatory tests for the diagnosis of brain death (CD 21–3).